LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

DATE: 15 Sept. 1967

TYPE (MIL-STD-150A)	Type I Aerial Reconnaissance
NAME	
FOCAL LENGTH	0.92 in.
RELATIVE APERTURE	f/5.0
FORMAT	2.25 in. x 2.25 in.
MANUFACTURER	Tropel Inc.
STOCK NO.	
SPECIFICATION NO.	
STATUS	

GENERAL DESCRIPTION

CHARACTERISTICS

EQUIVALENT FOCAL LENGTH	0.92 in.	TRANSMITTANCE	77%
BACK FOCAL DISTANCE	0.250 in.	COLOR CORRECTION	5461-6563Å
FRONT VERTEX BACK FOCAL DISTANCE	5.760 in.	DISTORTION *(Maximum)*	0.4 mm
FLANGE FOCAL DISTANCE	3.255 in.	LENS CELL DIAMETER *(Maximum)*	5.3 in.
SEMI-FIELD ANGLE	60°	OVERALL LENGTH	5.51 in.
RELATIVE APERTURE	f/5.0	WEIGHT	4 lbs 5.5 oz

REMARKS:

Used on the following aircraft camera: KS-71

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
0.92 in.	f/5.0	2.25 in. x 2.25 in.	Tropel Inc.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0		7.5		15		22.5		30		37.5		45		52.5		57.5	

FILM SO 206 TARGET CONTRAST High FILTER W-12

RADIAL	130		129		126		135		142		130		123		100		27	
TANGENTIAL	130		128		96		78		61		73		73		43		9	

AWAR 88 L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

RADIAL																		
TANGENTIAL																		

AWAR ______ L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

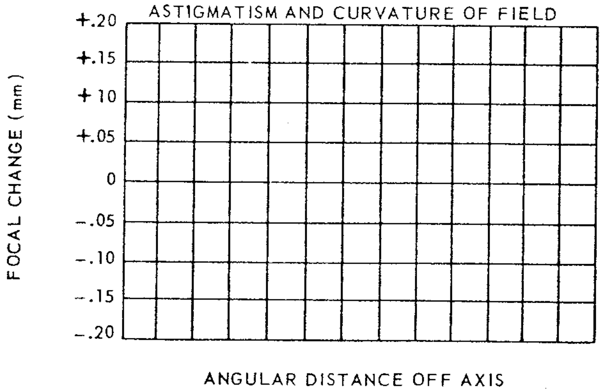
RADIAL																		
TANGENTIAL																		

AWAR ______ L/mm

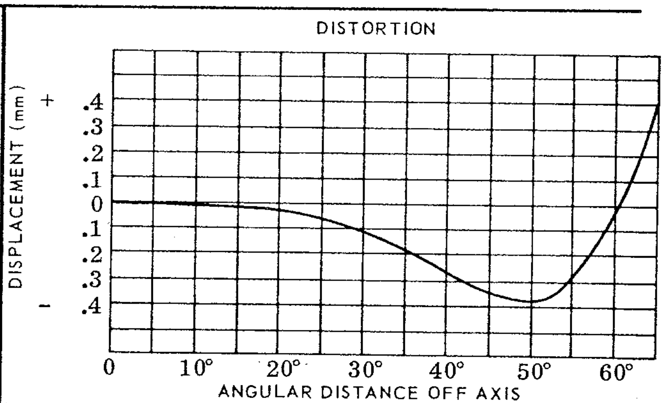
VISUAL ______ TARGET CONTRAST ______ FILTER ______

RADIAL																		
TANGENTIAL																		

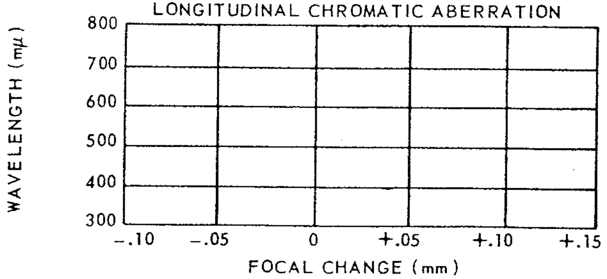
ASTIGMATISM AND CURVATURE OF FIELD



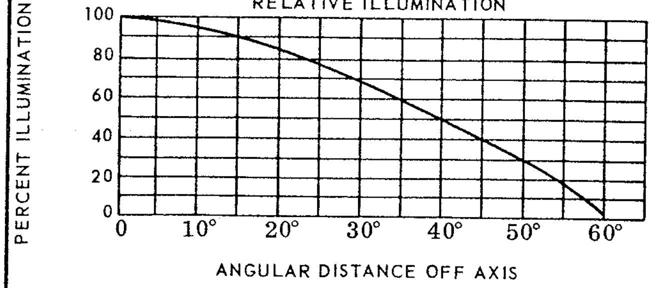
DISTORTION



LONGITUDINAL CHROMATIC ABERRATION



RELATIVE ILLUMINATION



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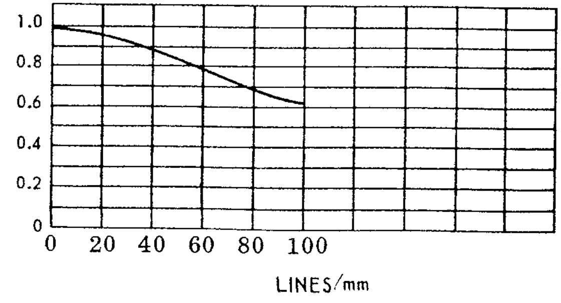
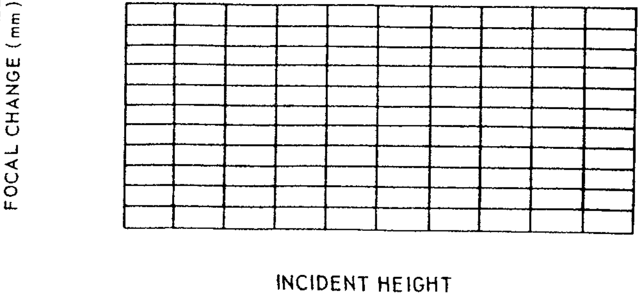


SPHERICAL ABERRATION



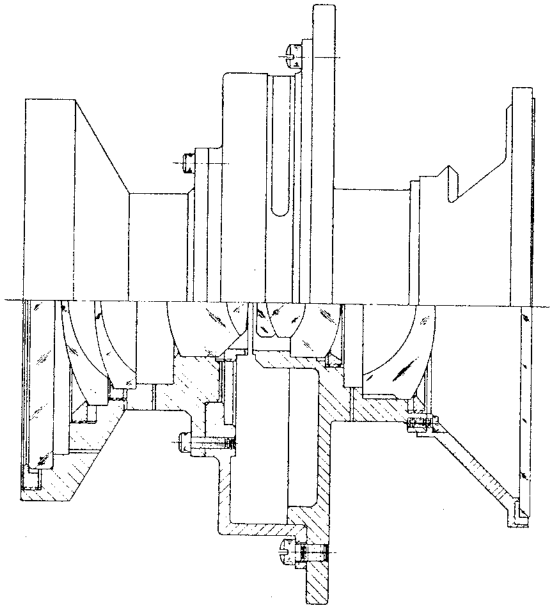
LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance	NAME Biogon-Aerogor

FOCAL LENGTH 1.5 in.	RELATIVE APERTURE f/4.5	FORMAT 2. 25 in. x 2. 25 in.	MANUFACTURER Goerz Optical Co. Inc.

STOCK NO.	SPECIFICATION NO.	STATUS Special Order

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 1.5 in. (38.5 mm)	TRANSMITTANCE 50%
BACK FOCAL DISTANCE 0.738 in. (18.74 mm)	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 3.781 in.	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE 1.847 in.	LENS CELL DIAMETER *(Maximum)* 4.875 in.
SEMI-FIELD ANGLE 45°	OVERALL LENGTH 4.05 in.
RELATIVE APERTURE f/4.5	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
1.5 in.	f/4.5	2.25 in. x 2.25 in.	Goerz Optical Co. Inc.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20	25	30	35	40	45								

FILM Aerecon XX TARGET CONTRAST ____ FILTER W-12

AVERAGE RADIAL AND TANGENTIAL	63	63	54	64	63	57	56	53	43	28									AWAR 49 L/mm
	63	50	57	55	55	52	47	46	27	24									

FILM Super XX TARGET CONTRAST ____ FILTER W-12

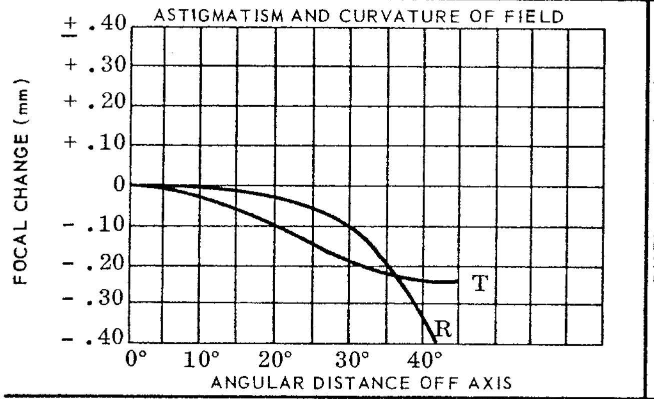
AVERAGE RADIAL AND TANGENTIAL	59	59	64	55	43	40	28	22	21										AWAR 46 L/mm

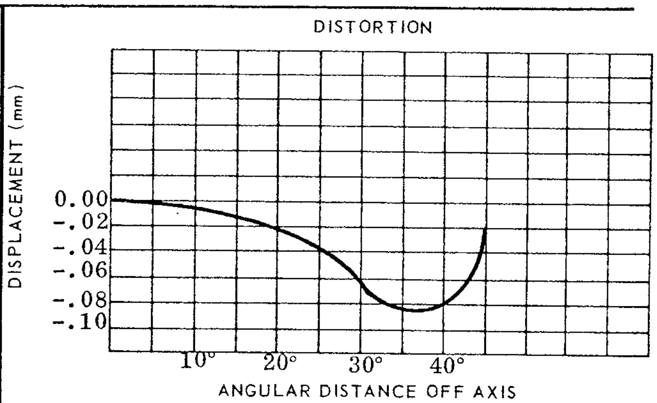
FILM Microfile TARGET CONTRAST ____ FILTER W-12

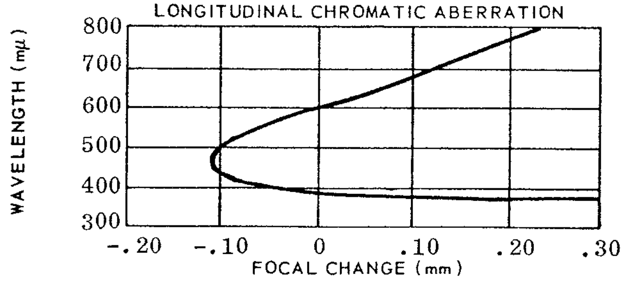
AVERAGE RADIAL AND TANGENTIAL	168	132	128	110	104	110	100	80	39	24									AWAR 107 L/mm

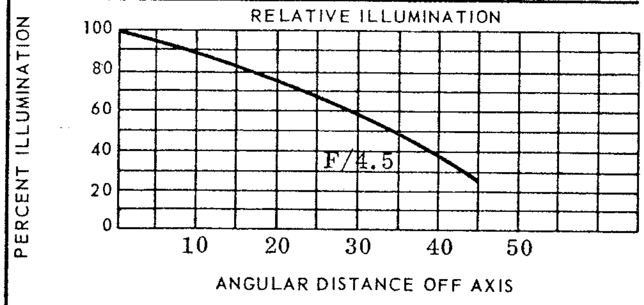
VISUAL Spectroscopic Plate TARGET CONTRAST ____ FILTER W-12

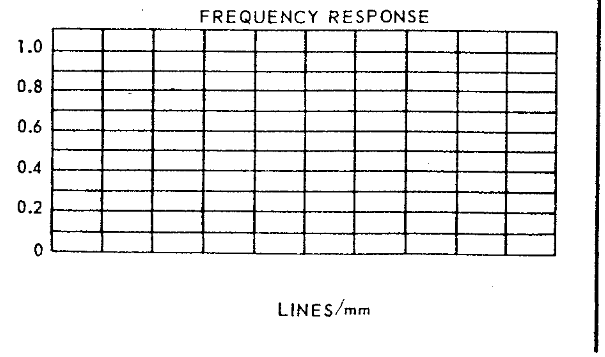
RADIAL	84	74	72	88	66	69	63	56	39	26									AWAR 75 L/mm
TANGENTIAL																			

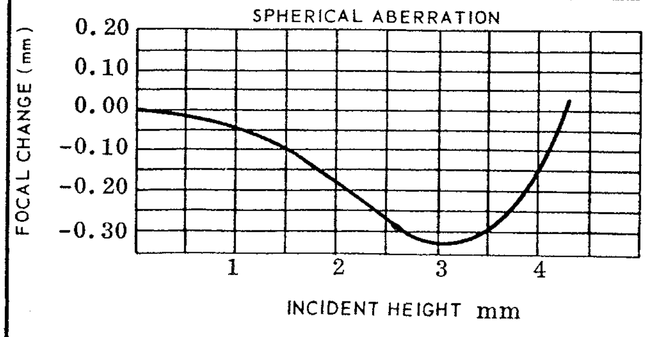












LENS DATA INFORMATION SHEET

(Reference MIL–STD–150A for definition of terms and methods of measurement)

DATE	15 Sept. 1967
TYPE (MIL–STD–150A)	Type I Aerial Reconnaissance
NAME	
FOCAL LENGTH	1.5 in.
RELATIVE APERTURE	f/4.5
FORMAT	2.25 in. x 2.25 in.
MANUFACTURER	Carl Zeiss, Inc.
STOCK NO.	
SPECIFICATION NO.	
STATUS	

GENERAL DESCRIPTION

CHARACTERISTICS

EQUIVALENT FOCAL LENGTH	1.5 in. (38.1 mm)	TRANSMITTANCE	84%
BACK FOCAL DISTANCE	0.761 in.	COLOR CORRECTION	4861-6563 °A
FRONT VERTEX BACK FOCAL DISTANCE	3.719 in.	DISTORTION *(Maximum)*	0.100 mm
FLANGE FOCAL DISTANCE	3.413 in.	LENS CELL DIAMETER *(Maximum)*	2.95 in.
SEMI–FIELD ANGLE	46°	OVERALL LENGTH	3.249 in.
RELATIVE APERTURE	f/4.5	WEIGHT	0.99 lb

REMARKS:

Used on the following aircraft camera: KS-71

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
1.5 in.	f/4.5	2.25 in. x 2.25 in.	Carl Zeiss, Inc.

Photographic Resolving Power in Lines /mm

FILM SO 206 TARGET CONTRAST High FILTER W-12

FIELD ANGLE (°)	0	7.5	10	15	20	22.5	30	37.5	40	45								
RADIAL	113	134		98		84	93	80		37								
TANGENTIAL	101	98		84		74	55	61		28								

AWAR 74 L/mm

FILM TARGET CONTRAST FILTER

RADIAL

TANGENTIAL

AWAR L/mm

FILM TARGET CONTRAST FILTER

RADIAL

TANGENTIAL

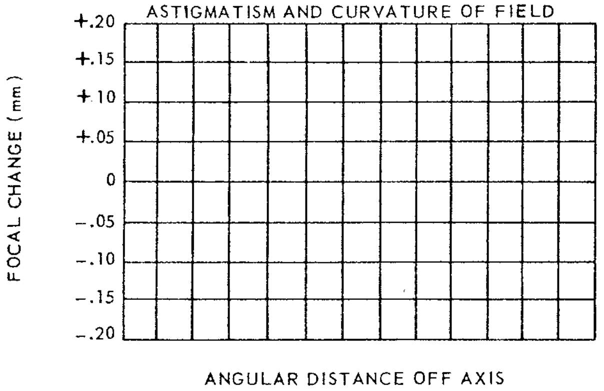
AWAR L/mm

VISUAL TARGET CONTRAST FILTER

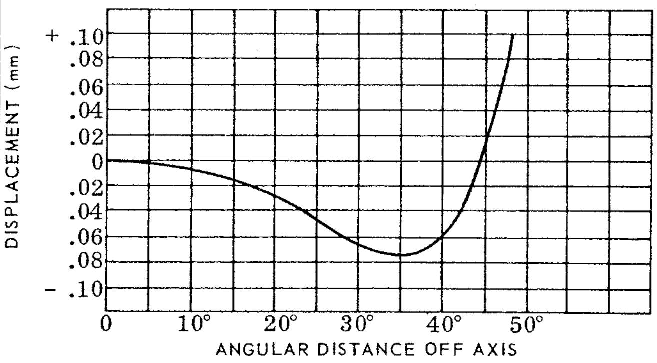
RADIAL

TANGENTIAL

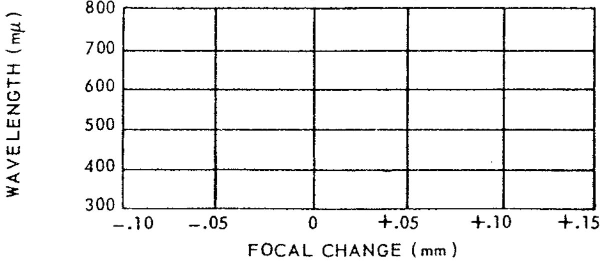
ASTIGMATISM AND CURVATURE OF FIELD



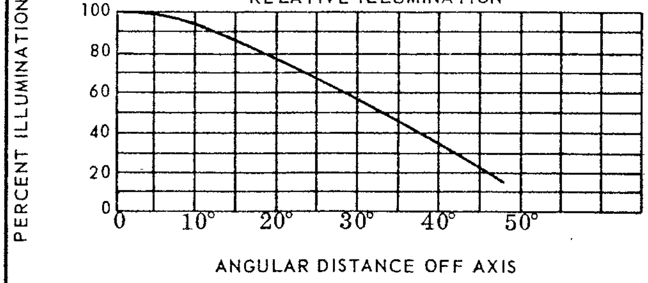
DISTORTION



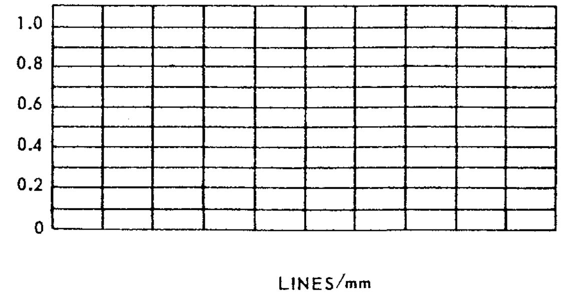
LONGITUDINAL CHROMATIC ABERRATION



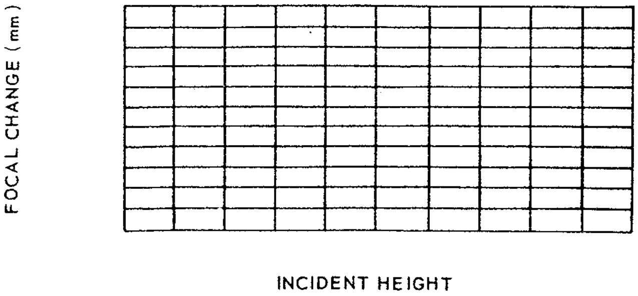
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



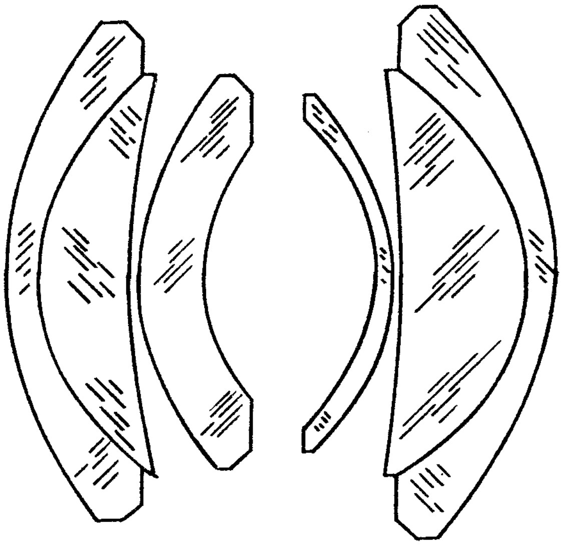
LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

DATE	15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance		NAME Deltamar	
FOCAL LENGTH 2 in.	RELATIVE APERTURE f/2.7	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Aerojet Delft Corp.
STOCK NO.	SPECIFICATION NO.	STATUS In Production	

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 2.1 in. (53.3 mm)	TRANSMITTANCE 91%
BACK FOCAL DISTANCE 1.43 in. (36.4 mm)	COLOR CORRECTION 5000 - 7000Å
FRONT VERTEX BACK FOCAL DISTANCE 2.65 in. (67.5 mm)	DISTORTION *(Maximum)* 1.2%
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)* 3.63 in.
SEMI-FIELD ANGLE 36°	OVERALL LENGTH 3.76 in.
RELATIVE APERTURE f/2.7	WEIGHT 1.1 lbs

REMARKS:

Used on following aircraft cameras: TA-7M

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
2 in.	f/2.7	2.25 in. x 2.25 in.	Aerojet Delft Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)

FILM Agfa Isopan FF TARGET CONTRAST 60:1 FILTER

RADIAL

TANGENTIAL

AWAR 50 L/mm

FILM TARGET CONTRAST FILTER

RADIAL

TANGENTIAL

AWAR L/mm

FILM TARGET CONTRAST FILTER

RADIAL

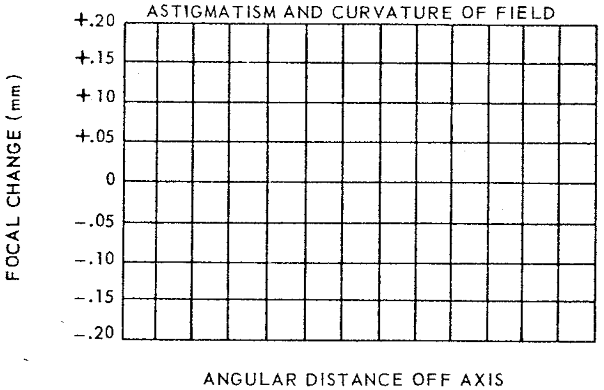
TANGENTIAL

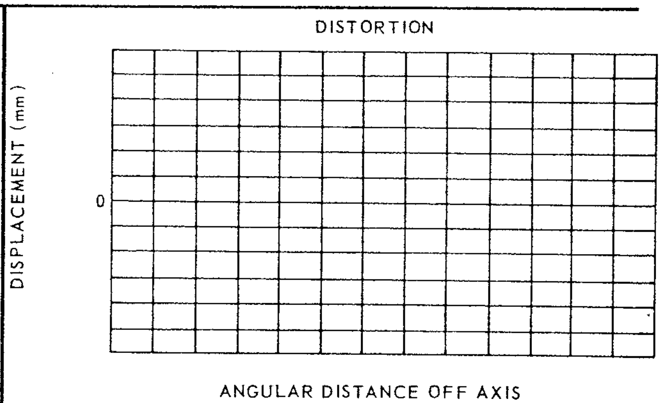
AWAR L/mm

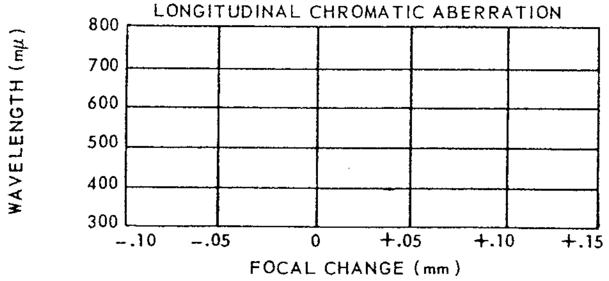
VISUAL TARGET CONTRAST FILTER

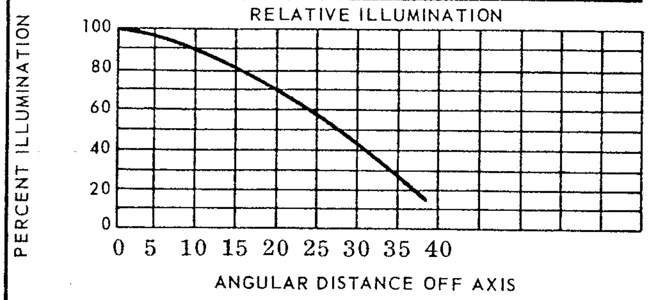
RADIAL

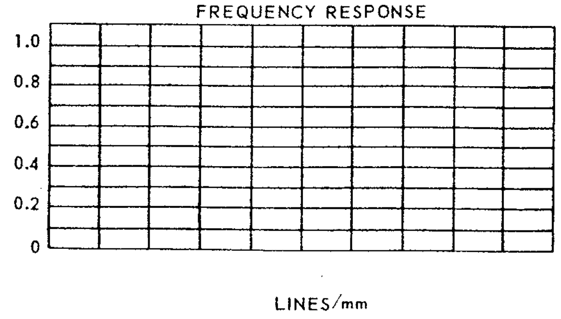
TANGENTIAL

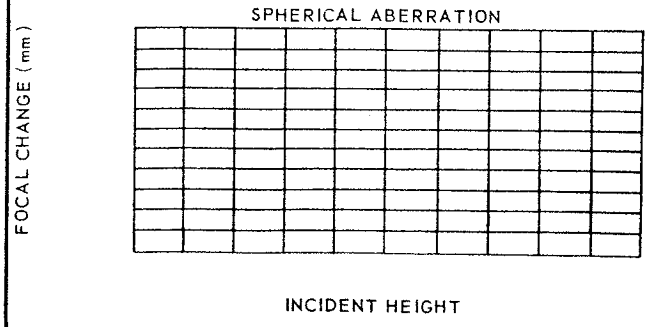

ASTIGMATISM AND CURVATURE OF FIELD


DISTORTION


LONGITUDINAL CHROMATIC ABERRATION


RELATIVE ILLUMINATION


FREQUENCY RESPONSE


SPHERICAL ABERRATION

LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

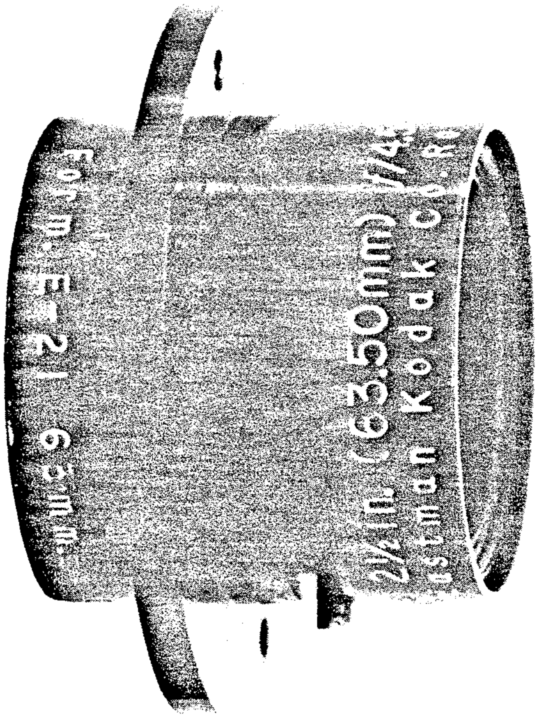
DATE
15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance	NAME Ektar

FOCAL LENGTH 2.5 in.	RELATIVE APERTURE f/4.5	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Eastman Kodak Co.

STOCK NO. Eastman Kodak 805990	SPECIFICATION NO.	STATUS Special Order

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 2.5 in. (63.81 mm)	TRANSMITTANCE
BACK FOCAL DISTANCE 2.7 in. (52.63 mm)	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 2.98 in. (75.63 mm)	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE 2.165 in.	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 35°	OVERALL LENGTH
RELATIVE APERTURE f/4.5	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
2.5 in.	f/4.5	2.25 in. x 2.25 in.	Eastman Kodak Co.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20	25	30											

FILM Plus X TARGET CONTRAST High FILTER W-12

AVERAGE RADIAL AND TANGENTIAL	33	27	26	20	15	14	12											

AWAR ______ L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

AVERAGE RADIAL AND TANGENTIAL																		

AWAR ______ L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

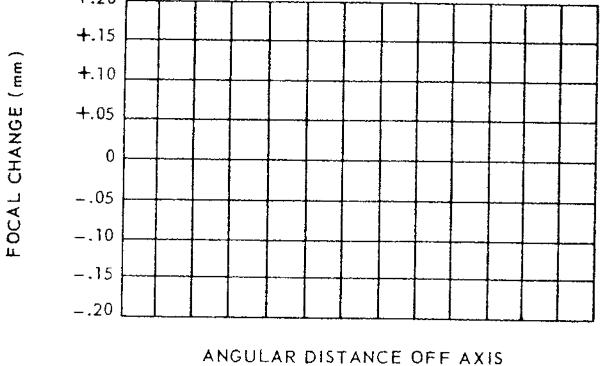
AVERAGE RADIAL AND TANGENTIAL																		

AWAR ______ L/mm

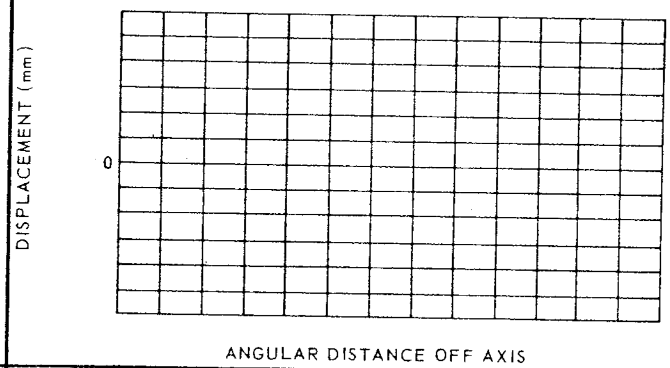
VISUAL ______ TARGET CONTRAST ______ FILTER ______

RADIAL																		
TANGENTIAL																		

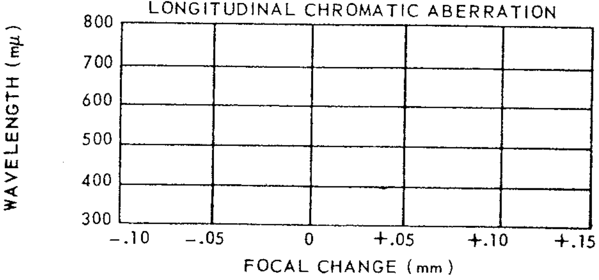
ASTIGMATISM AND CURVATURE OF FIELD



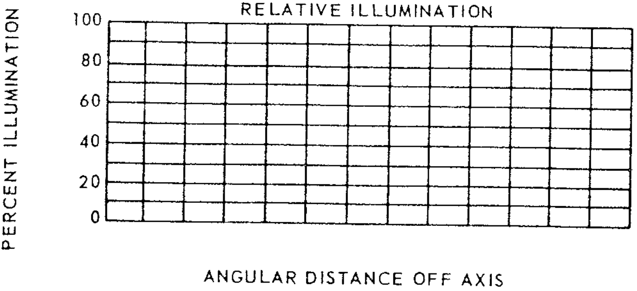
DISTORTION



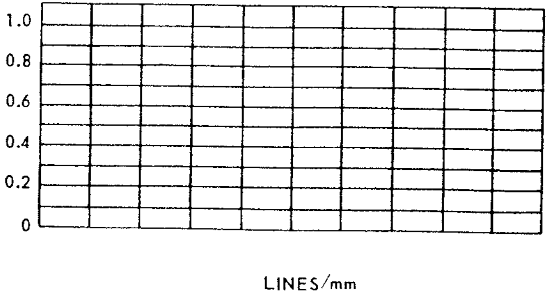
LONGITUDINAL CHROMATIC ABERRATION



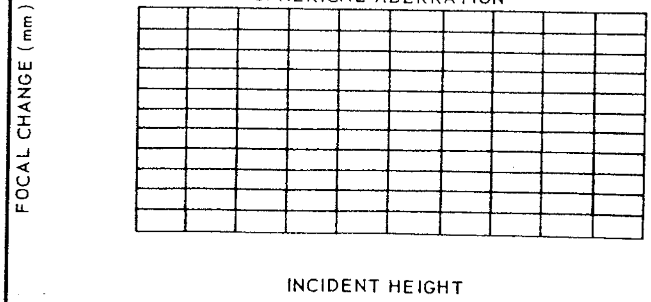
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



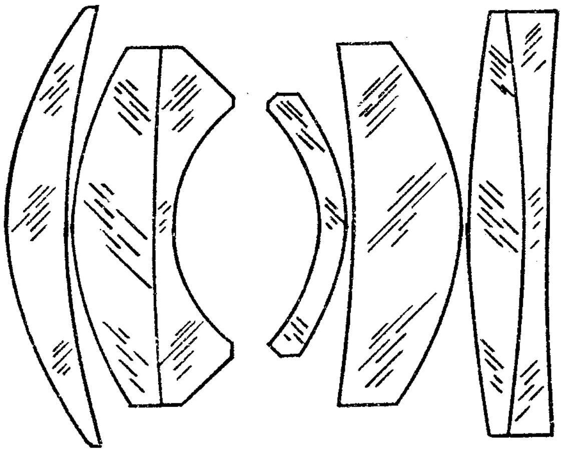
LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance	NAME Deltamar

FOCAL LENGTH 2.75 in.	RELATIVE APERTURE f/1.6	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Aerojet Delft Corp.

STOCK NO.	SPECIFICATION NO.	STATUS Production

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 2.75 in. (70.3 mm)	TRANSMITTANCE 82%
BACK FOCAL DISTANCE 1.53 in. (39.0 mm)	COLOR CORRECTION 5000-7000Å
FRONT VERTEX BACK FOCAL DISTANCE 4.0 in. (102.0 mm)	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)* 3.63 in.
SEMI-FIELD ANGLE 32°	OVERALL LENGTH 4.1 in.
RELATIVE APERTURE f/1.6	WEIGHT 2.0 lbs

REMARKS:

Used on the following aircraft cameras: TA-7M

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
2.75 in.	f/1.6	2.25 in. x 2.25 in.	Aerojet Delft Corp.

Photographic Resolving Power in Lines /mm

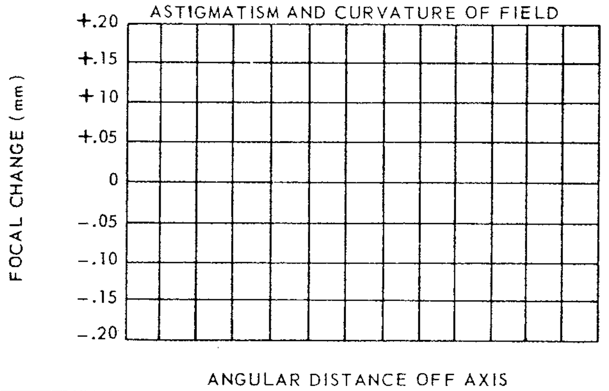
FIELD ANGLE (°)

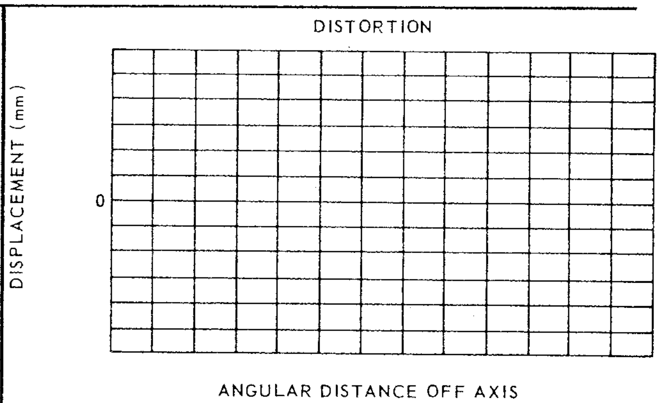
FILM Agfa Isopan FF TARGET CONTRAST 60:1 FILTER
RADIAL
TANGENTIAL
AWAR 46 L/mm

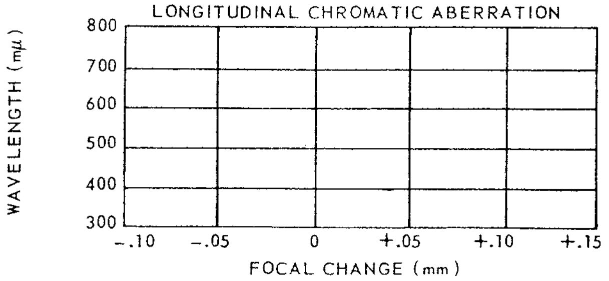
FILM TARGET CONTRAST FILTER
RADIAL
TANGENTIAL
AWAR L/mm

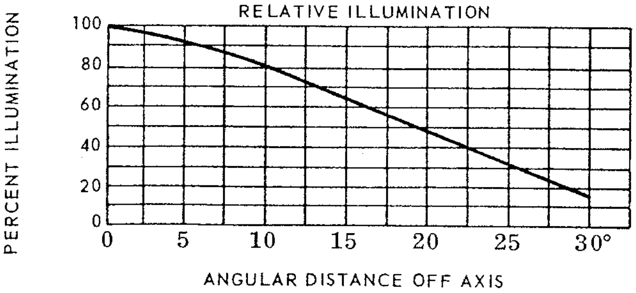
FILM TARGET CONTRAST FILTER
RADIAL
TANGENTIAL
AWAR L/mm

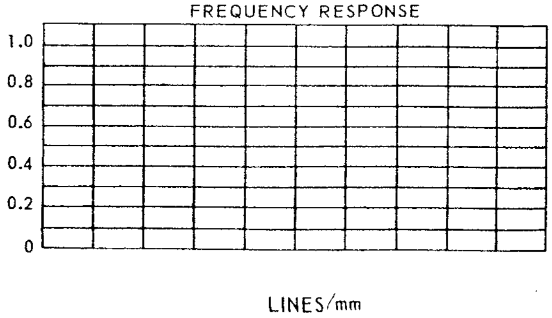
VISUAL TARGET CONTRAST FILTER
RADIAL
TANGENTIAL

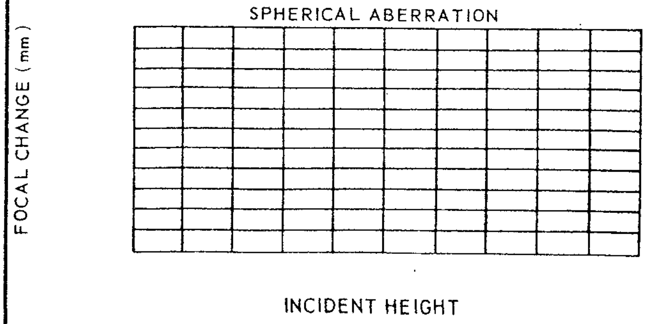

ASTIGMATISM AND CURVATURE OF FIELD


DISTORTION


LONGITUDINAL CHROMATIC ABERRATION


RELATIVE ILLUMINATION


FREQUENCY RESPONSE


SPHERICAL ABERRATION

LENS DATA INFORMATION SHEET *(Reference MIL-STD-150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance	NAME Super Farron

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/0.87	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Farrand Optical Co.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION

CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.2 mm)	TRANSMITTANCE (T/1.0)
BACK FOCAL DISTANCE 0.120 in.	COLOR CORRECTION Visible
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)* 3.875 in.
SEMI-FIELD ANGLE 15°	OVERALL LENGTH 4.72 in.
RELATIVE APERTURE f/0.87	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
3 in.	f/0.87	2.25 in. x 2.25 in.	Farrand Optical Co.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	2.5	5	7.5	10	12.5												

FILM Plus X TARGET CONTRAST High FILTER ____

AVERAGE RADIAL AND TANGENTIAL	62	50	44	44	44	44													AWAR 45 L/mm

FILM SO 243 TARGET CONTRAST High FILTER ____

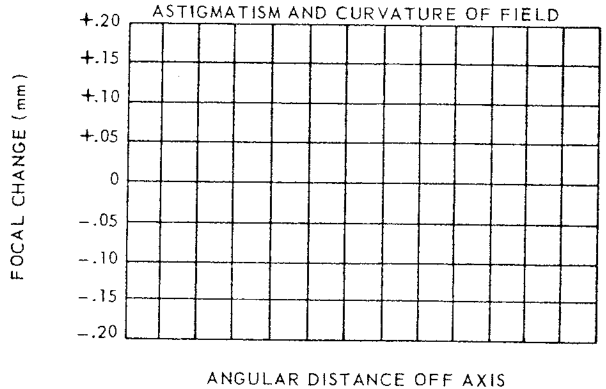
AVERAGE RADIAL AND TANGENTIAL	178	157	90	70	70	70													AWAR 75 L/mm

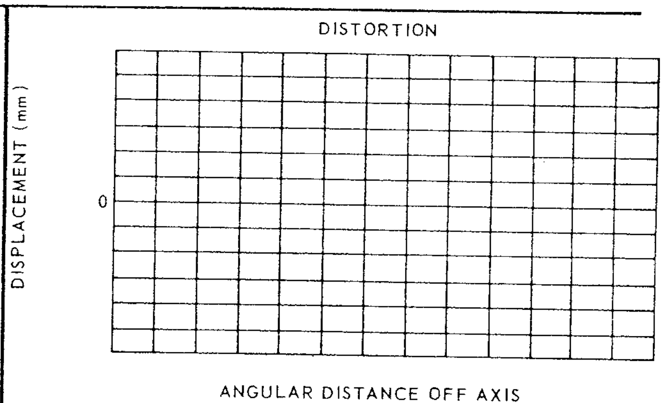
FILM ____ TARGET CONTRAST ____ FILTER ____

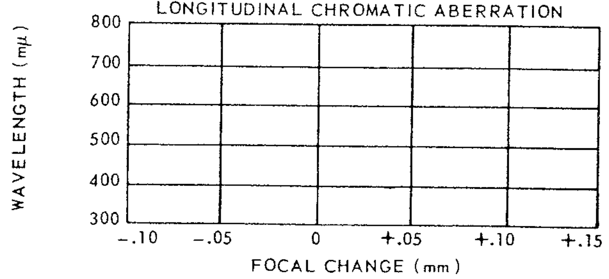
AVERAGE RADIAL AND TANGENTIAL																			AWAR ____ L/mm

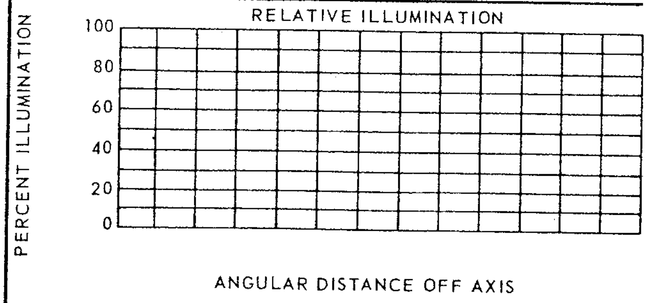
VISUAL ____ TARGET CONTRAST ____ FILTER ____

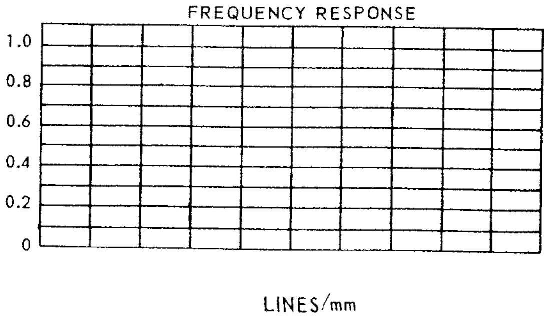
RADIAL																		
TANGENTIAL																		

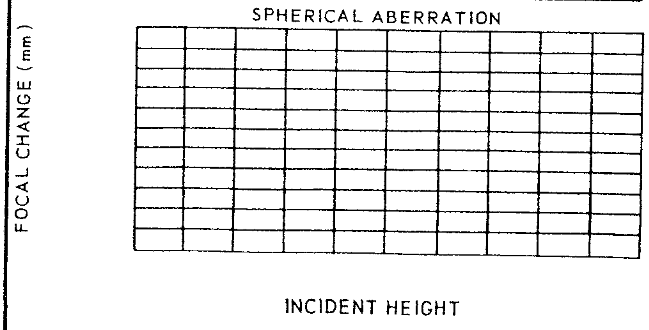










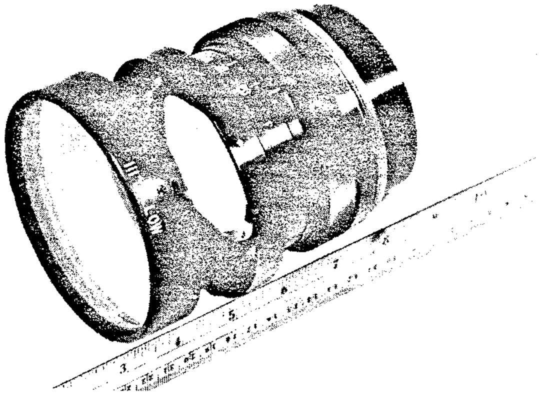


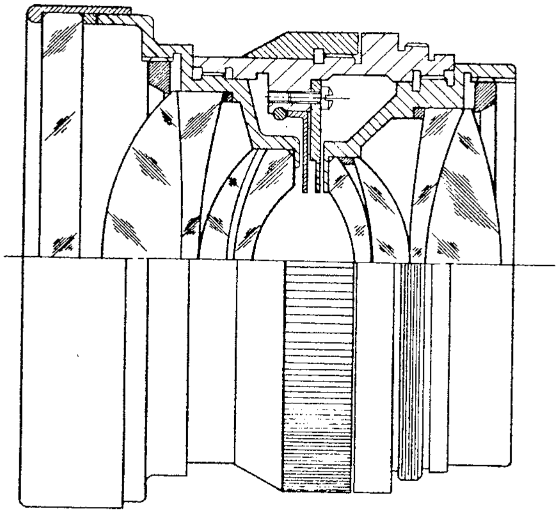
LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance		NAME	
FOCAL LENGTH 3 in.	RELATIVE APERTURE f/1.5	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Perkin-Elmer Corp.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION





CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.90 mm)	TRANSMITTANCE 78% (T1.7)
BACK FOCAL DISTANCE 1.47 in. (37.5 mm)	COLOR CORRECTION 5500-6500Å
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)* .04 mm
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 20.5°	OVERALL LENGTH
RELATIVE APERTURE f/1.5	WEIGHT

REMARKS:

Used on the following aircraft cameras: KA-26, KA-43, KA-44

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
3 in.	f/1.5	2.25 in. x 2.25 in.	Perkin-Elmer Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20	25												

f/1.5 FILM Super XX TARGET CONTRAST High FILTER W-12

RADIAL	56	49	29	20	24	20												
TANGENTIAL	45	47	32	22	25	18												

AWAR 27 L/mm

f/2.0 FILM Super XX TARGET CONTRAST High FILTER W-12

RADIAL	79	59	40	24	24	23												
TANGENTIAL	71	49	41	28	33	31												

AWAR 33 L/mm

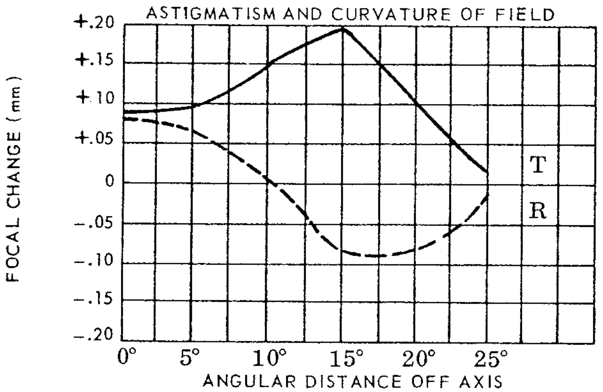
f/4.0 FILM Super XX TARGET CONTRAST High FILTER W-12

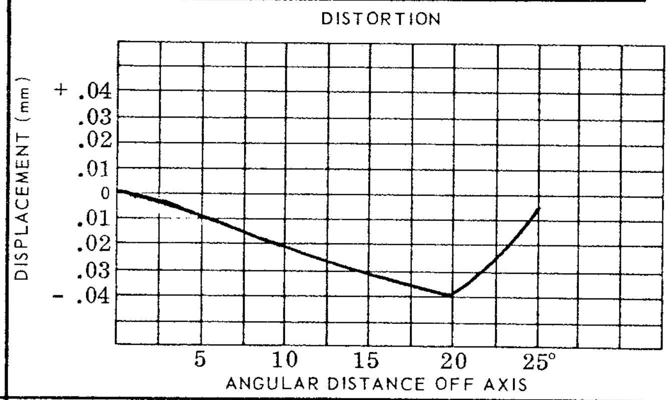
RADIAL	63	59	31	21	20	29												
TANGENTIAL	63	56	50	46	44	33												

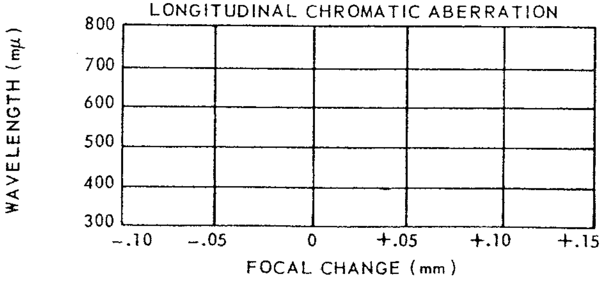
AWAR 35 L/mm

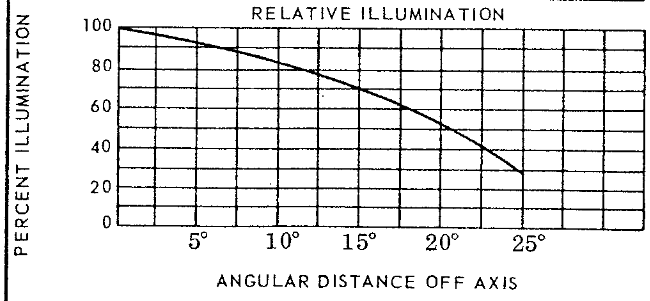
VISUAL ______ TARGET CONTRAST ______ FILTER ______

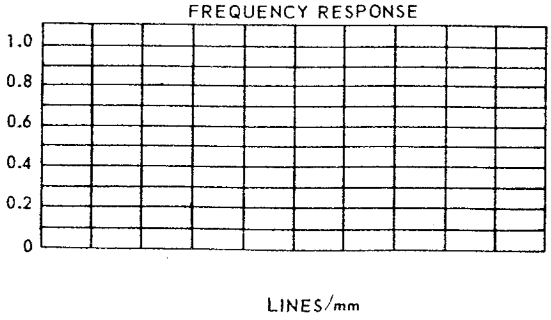
RADIAL																		
TANGENTIAL																		

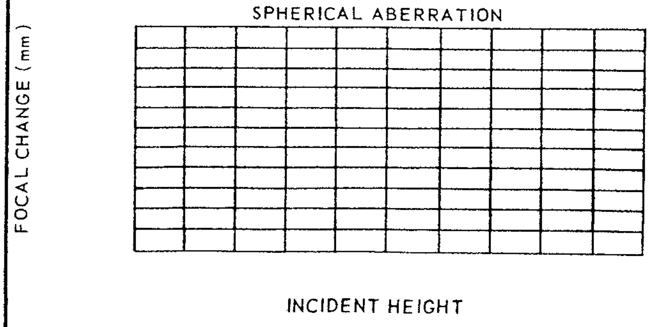












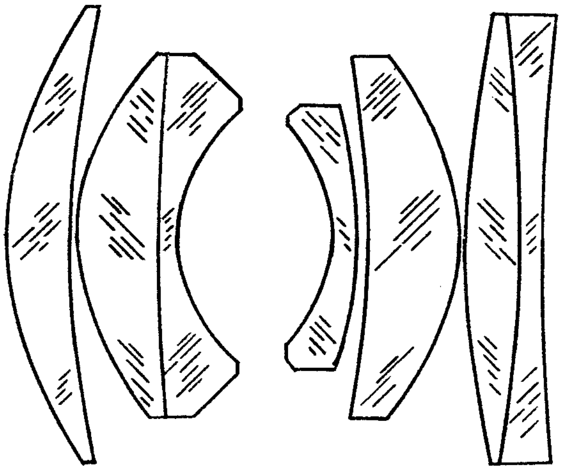
LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL–STD–150A) Type I Aerial Reconnaissance	NAME Deltamar

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/1.7	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Aerojet Delft Corp.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (80.0 mm)	TRANSMITTANCE 82°
BACK FOCAL DISTANCE 1.843 in. (46.9 mm)	COLOR CORRECTION 5000-7000Å
FRONT VERTEX BACK FOCAL DISTANCE 4.43 in. (112.6 mm)	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)* 2.87 in. (74 mm)
SEMI-FIELD ANGLE 28°	OVERALL LENGTH 4.5 in. (114 mm)
RELATIVE APERTURE f/1.7	WEIGHT

REMARKS:

Used on following aircraft cameras: TA-7M

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/1.7	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Aerojet Delft Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)																		

FILM Agfa Isopan FF TARGET CONTRAST 60:1 FILTER

RADIAL																		
TANGENTIAL																		

AWAR 45 L/mm

FILM TARGET CONTRAST FILTER

RADIAL																		
TANGENTIAL																		

AWAR L/mm

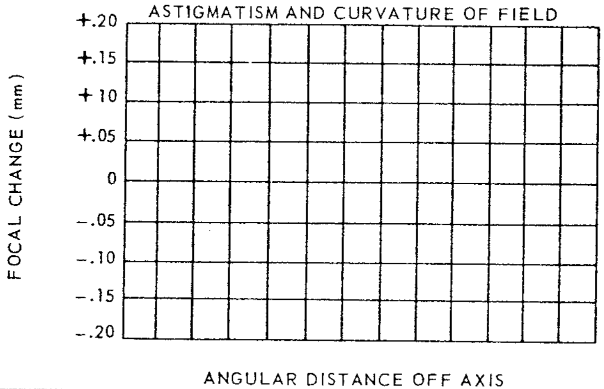
FILM TARGET CONTRAST FILTER

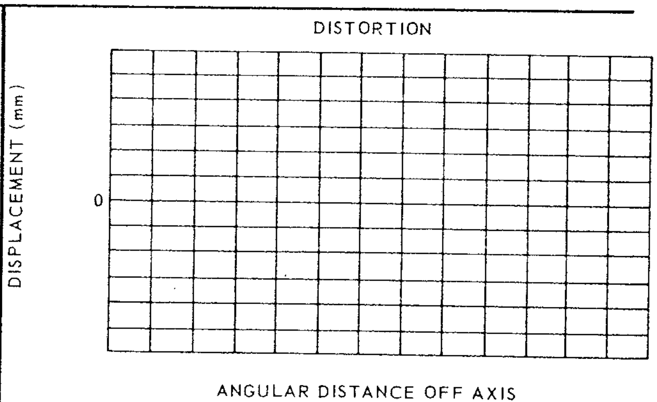
RADIAL																		
TANGENTIAL																		

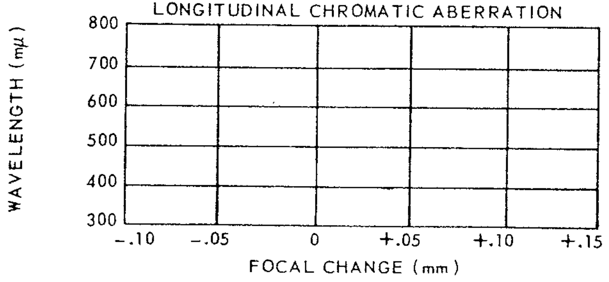
AWAR L/mm

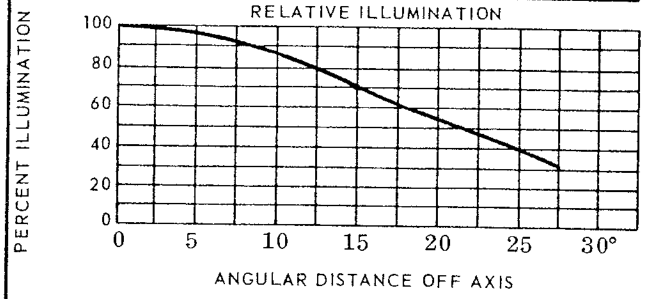
VISUAL TARGET CONTRAST FILTER

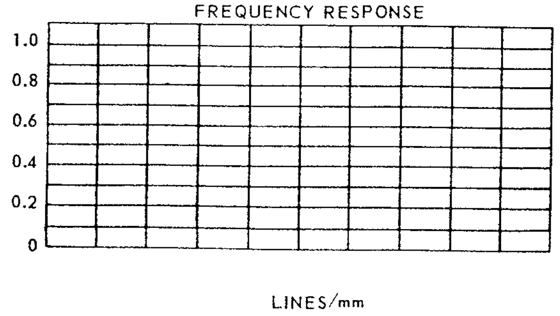
RADIAL																		
TANGENTIAL																		

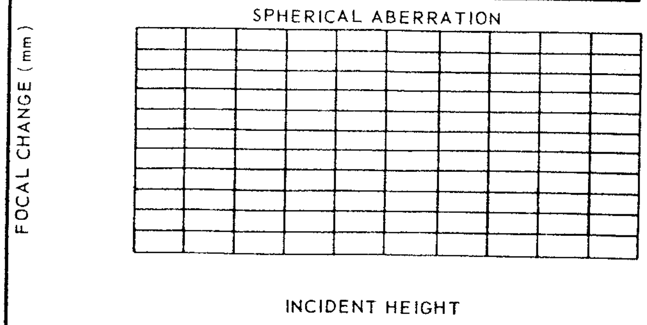








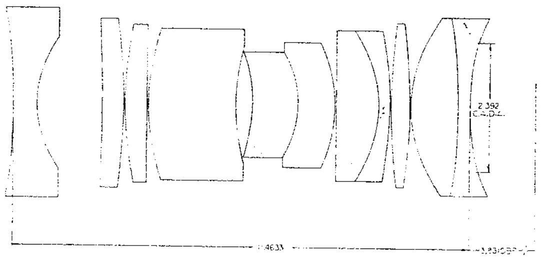




LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance		NAME	
FOCAL LENGTH 3 in.	RELATIVE APERTURE f/1.9	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Fairchild Space & Defense Systems, El Segundo
STOCK NO. Fairchild P/N 13011-MA	SPECIFICATION NO.	STATUS Production	

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.2 mm)	TRANSMITTANCE 70%
BACK FOCAL DISTANCE 3.8310 in.	COLOR CORRECTION Wratten 12
FRONT VERTEX BACK FOCAL DISTANCE 15.2943	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 27.94°	OVERALL LENGTH
RELATIVE APERTURE f/1.9	WEIGHT

REMARKS:

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/1.9	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Fairchild Space & Defense Systems, El Segundo

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0		15		21		27.9											

FILM Plus X Aerecon TARGET CONTRAST ______ FILTER ______

RADIAL	90		50		50		30											
TANGENTIAL	75		45		40		25											

AWAR ______ L/mm

FILM Panatomic X TARGET CONTRAST ______ FILTER ______

RADIAL	100		60		60		35											
TANGENTIAL	90		50		50		25											

AWAR ______ L/mm

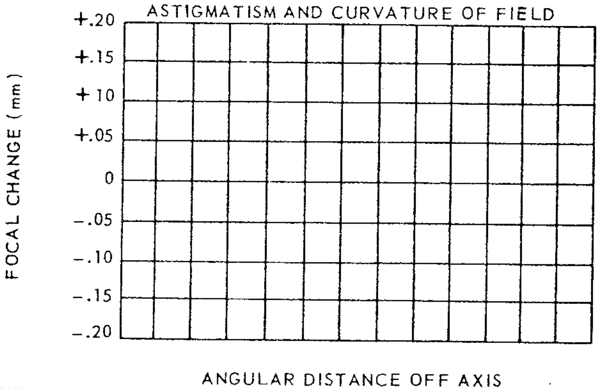
FILM ______ TARGET CONTRAST ______ FILTER ______

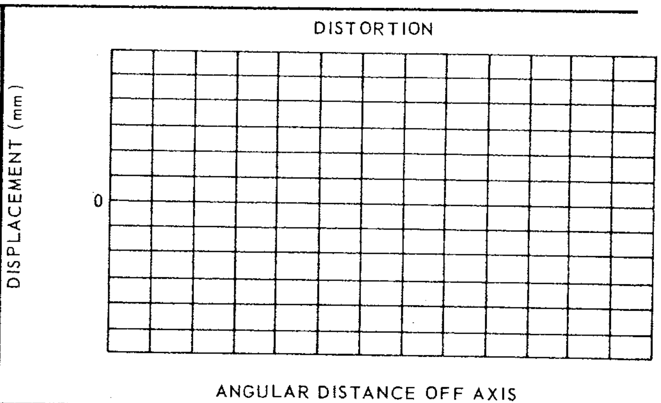
RADIAL																		
TANGENTIAL																		

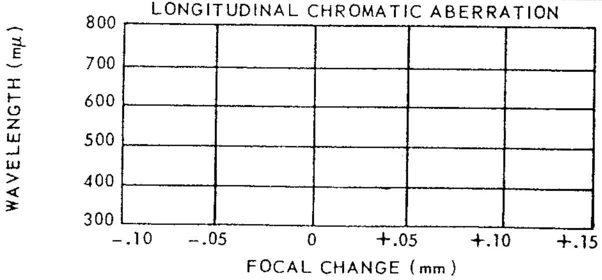
AWAR ______ L/mm

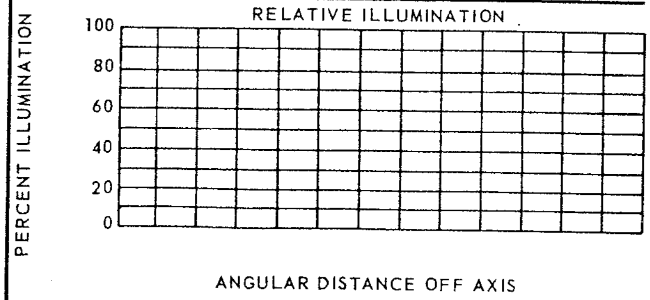
VISUAL ______ TARGET CONTRAST ______ FILTER ______

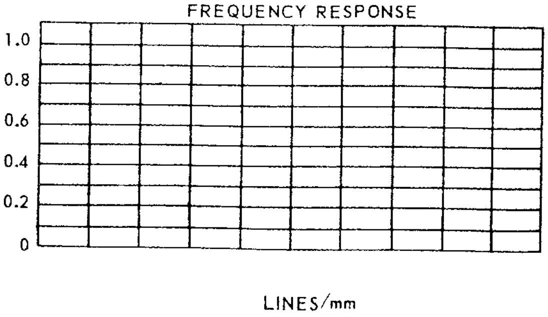
RADIAL																		
TANGENTIAL																		

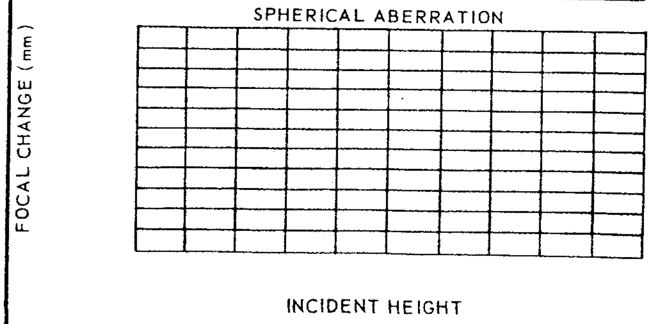












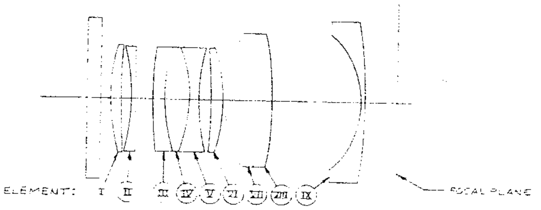
LENS DATA INFORMATION SHEET *(Reference MIL-STD-150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance	NAME

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.0	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Kollmorgen Corp.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (77.42 mm)	TRANSMITTANCE 83% (T-2.2)
BACK FOCAL DISTANCE .490 in. (12.46 mm)	COLOR CORRECTION 5461-7665Å
FRONT VERTEX BACK FOCAL DISTANCE 4.43 in. (112.75 mm)	DISTORTION *(Maximum)* -1.54%
FLANGE FOCAL DISTANCE 2.312 in.	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 27.5°	OVERALL LENGTH
RELATIVE APERTURE f/2.0	WEIGHT 2 lbs 13 oz.

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
3 in.	f/2.0	2.25 in. x 2.25 in.	Kollmorgen Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20	25	27.5											

FILM Super XX TARGET CONTRAST High FILTER W-12

RADIAL	63	63	55	34	28	35	24											
TANGENTIAL	63	63	54	49	48	25	7											

AWAR 44 L/mm

FILM Infrared TARGET CONTRAST High FILTER Red

RADIAL	45	40	38	31	26	24	12											
TANGENTIAL	45	40	30	35	29	23	9											

AWAR 32 L/mm

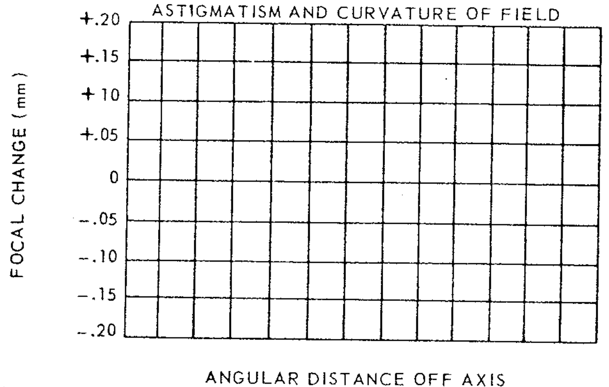
FILM Microfile TARGET CONTRAST High FILTER W-12

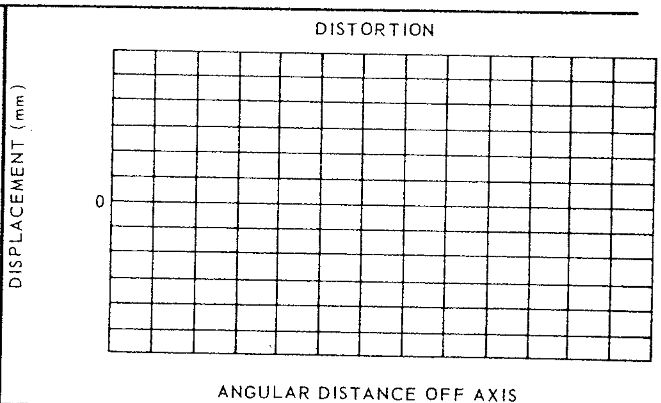
RADIAL	100	112	139	69	50	64	37											
TANGENTIAL	100	111	159	117	88	45	6											

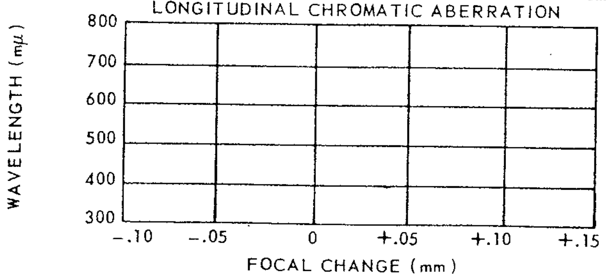
AWAR 93 L/mm

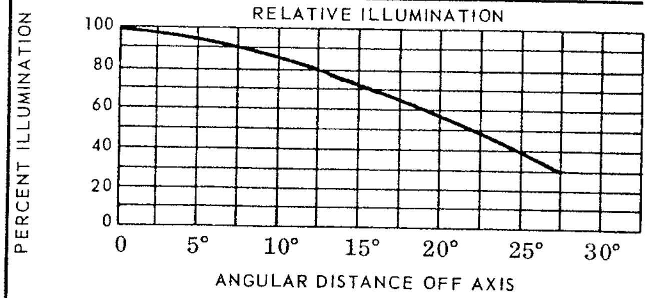
VISUAL TARGET CONTRAST FILTER

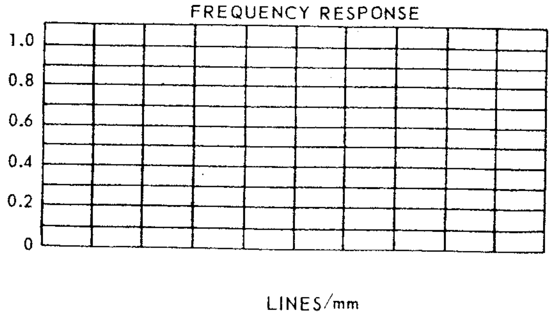
RADIAL																		
TANGENTIAL																		

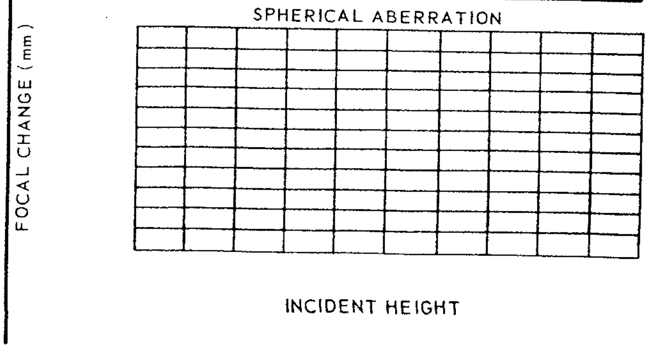












LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

DATE	15 Sept. 1967
TYPE (MIL-STD-150A)	Type I Aerial Reconnaissance
NAME	
FOCAL LENGTH	3 in.
RELATIVE APERTURE	f/2.0
FORMAT	2.25 in. x 2.25 in.
MANUFACTURER	Leitz, Canada
STOCK NO.	
SPECIFICATION NO.	
STATUS	

GENERAL DESCRIPTION

CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.2mm)	TRANSMITTANCE 90%
BACK FOCAL DISTANCE 1.600 in.	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 4.360 in.	DISTORTION *(Maximum)* 0.750 mm
FLANGE FOCAL DISTANCE 3.720 in.	LENS CELL DIAMETER *(Maximum)* 3.150 in.
SEMI-FIELD ANGLE 27°	OVERALL LENGTH 3.340 in.
RELATIVE APERTURE f/2.0	WEIGHT 1 lb, 10 oz

REMARKS:

Used on the following aircraft camera: KS-71

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
3 in.	f/2.0	2.25 in. x 2.25 in.	Leitz, Canada

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0		5		10		15		20		25							

FILM SO 206 TARGET CONTRAST High FILTER W-12

RADIAL	90		90		124		97		67		32							
TANGENTIAL	71		71		44		66		50		21							

AWAR 64 L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

RADIAL																		
TANGENTIAL																		

AWAR ______ L/mm

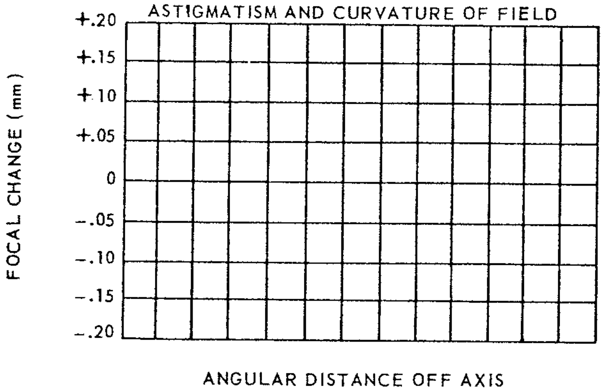
FILM ______ TARGET CONTRAST ______ FILTER ______

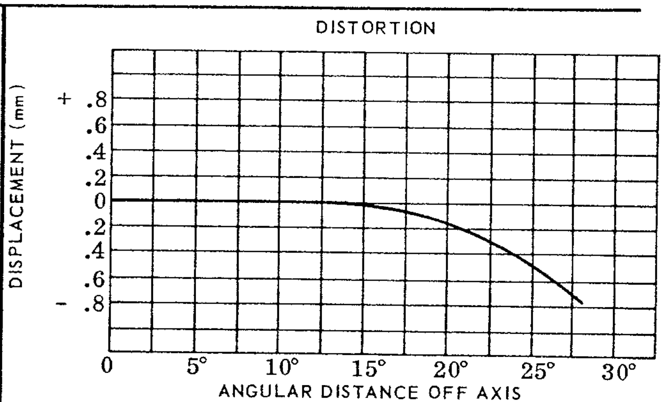
RADIAL																		
TANGENTIAL																		

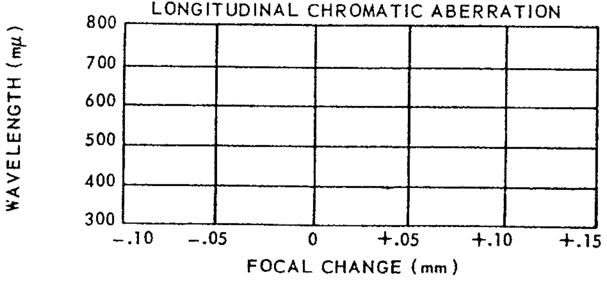
AWAR ______ L/mm

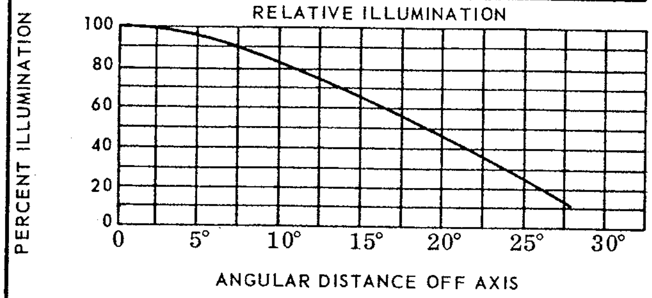
VISUAL ______ TARGET CONTRAST ______ FILTER ______

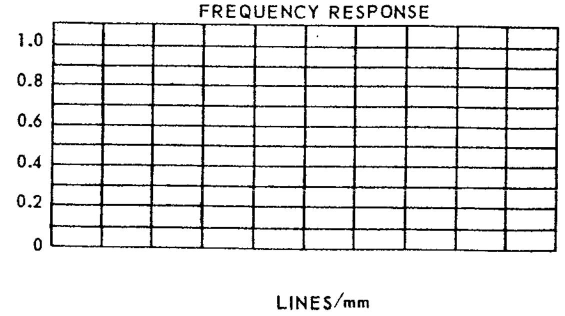
RADIAL																		
TANGENTIAL																		

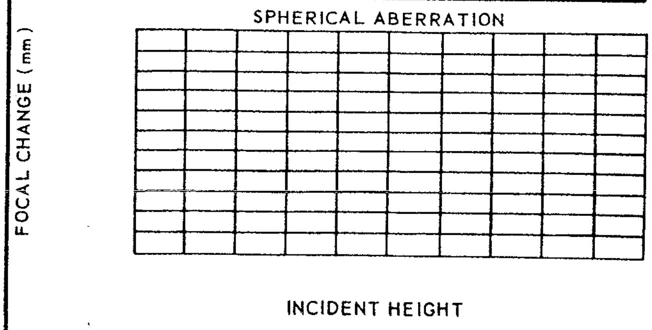

ASTIGMATISM AND CURVATURE OF FIELD


DISTORTION


LONGITUDINAL CHROMATIC ABERRATION


RELATIVE ILLUMINATION


FREQUENCY RESPONSE

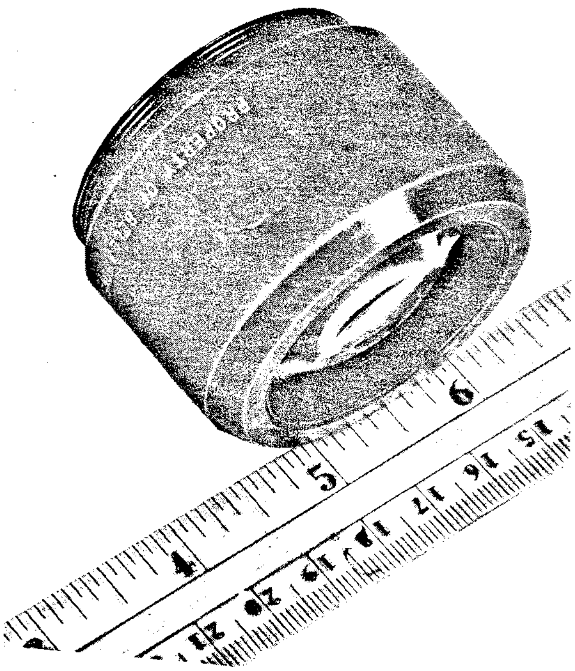

SPHERICAL ABERRATION

LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance		NAME	
FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Bell & Howell Co.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.81 mm)	TRANSMITTANCE 88% (T3.2)
BACK FOCAL DISTANCE 2.35 in. (59.80 mm)	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 25°	OVERALL LENGTH
RELATIVE APERTURE f/2.8	WEIGHT

REMARKS:

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Bell & Howell Co.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20	25												

FILM Super X TARGET CONTRAST ______ FILTER W-12

RADIAL	45	52	43	27	21	35												
TANGENTIAL	39	42	48	30	29	22												

AWAR 32 L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

RADIAL																		
TANGENTIAL																		

AWAR ______ L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

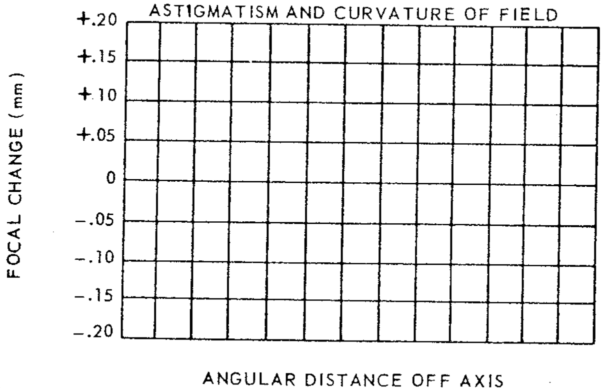
RADIAL																		
TANGENTIAL																		

AWAR ______ L/mm

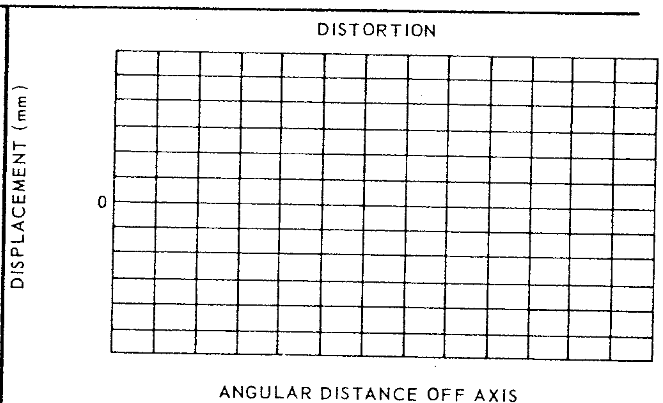
VISUAL ______ TARGET CONTRAST ______ FILTER ______

RADIAL																		
TANGENTIAL																		

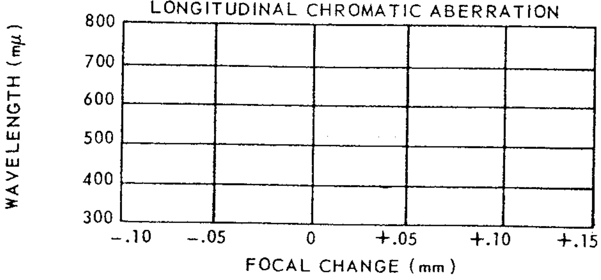
ASTIGMATISM AND CURVATURE OF FIELD



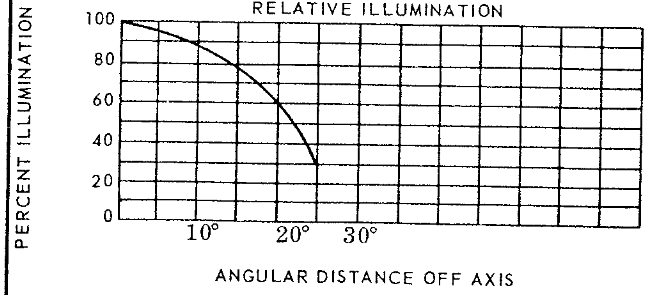
DISTORTION



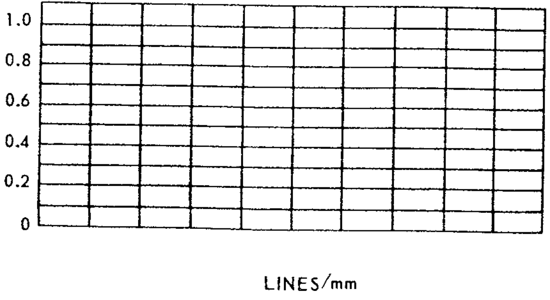
LONGITUDINAL CHROMATIC ABERRATION



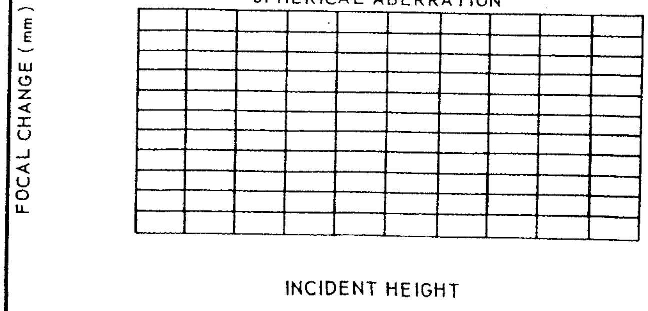
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



SPHERICAL ABERRATION



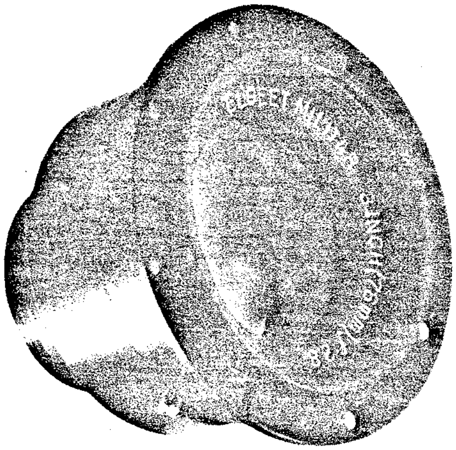
LENS DATA INFORMATION SHEET

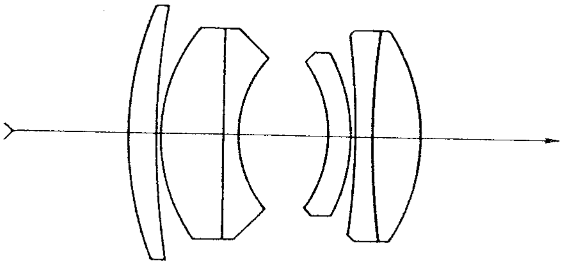
(Reference MIL–STD–150A for definition of terms and methods of measurement)

DATE
15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance		NAME Navitar	
FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Elgeet Optical Co.
STOCK NO.	SPECIFICATION NO.	STATUS	

GENERAL DESCRIPTION





CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.2 mm)	TRANSMITTANCE 87% (T-3.0)
BACK FOCAL DISTANCE 2.23 in. (56.60 mm)	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 27.5°	OVERALL LENGTH
RELATIVE APERTURE f/2.8	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
3 in.	f/2.8	2.25 in. x 2.25 in.	Elgeet Optical Co.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20	25	27.5											

FILM Super XX TARGET CONTRAST ______ FILTER W-12

RADIAL	50	53	51	36	33	21	11											
TANGENTIAL	50	53	39	30	26	16	9											

AWAR 35 L/mm

FILM SO-1182 TARGET CONTRAST ______ FILTER W-12

RADIAL	125	125	88	55	51	48	16											
TANGENTIAL	125	118	78	65	49	24	13											

AWAR 69 L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

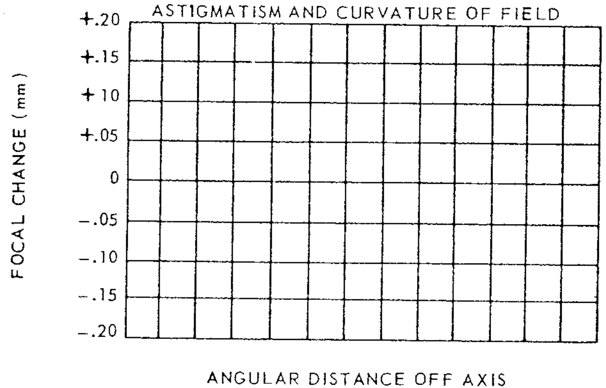
RADIAL																		
TANGENTIAL																		

AWAR ______ L/mm

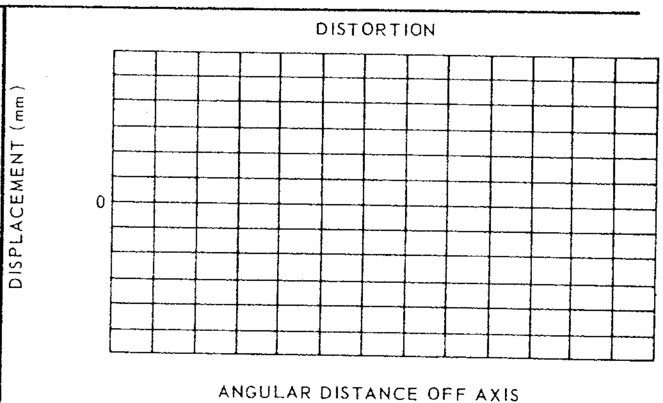
VISUAL ______ TARGET CONTRAST ______ FILTER ______

RADIAL																		
TANGENTIAL																		

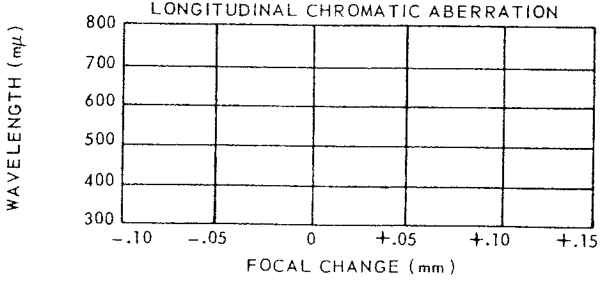
ASTIGMATISM AND CURVATURE OF FIELD



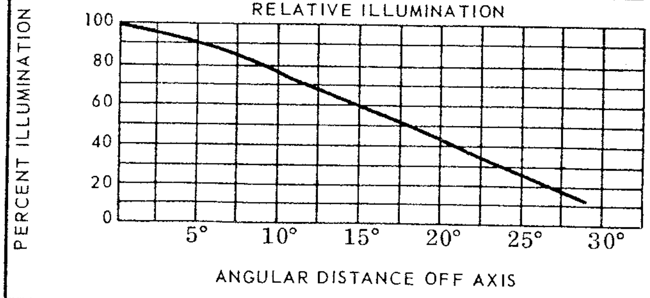
DISTORTION



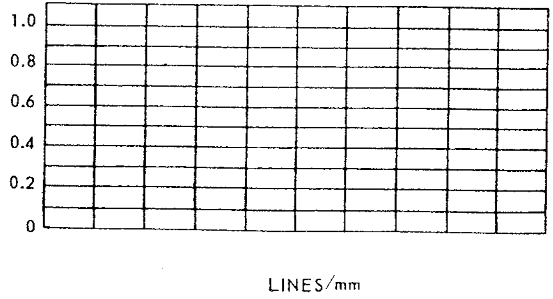
LONGITUDINAL CHROMATIC ABERRATION



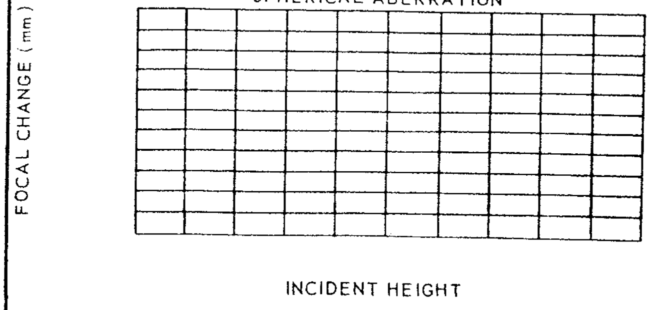
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



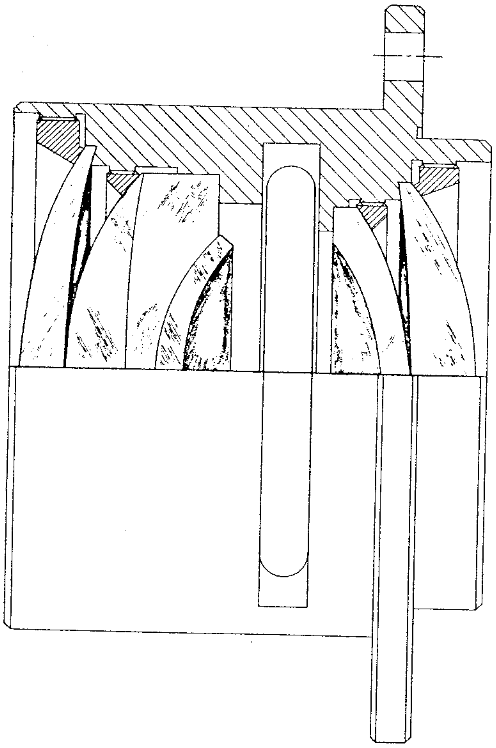
SPHERICAL ABERRATION



LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL–STD–150A) Type I Aerial Reconnaissance		NAME Bikini	
FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Fairchild Space & Defense Systems, El Segundo
STOCK NO. Fairchild P/N 124-100	SPECIFICATION NO.	STATUS Production	

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.2 mm)	TRANSMITTANCE
BACK FOCAL DISTANCE 2.1454 in.	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 3.5823 in.	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE 2.328 ± .031 in.	LENS CELL DIAMETER *(Maximum)* 2.344 in.
SEMI-FIELD ANGLE 25°	OVERALL LENGTH 1.5 in.
RELATIVE APERTURE f/2.8	WEIGHT

REMARKS:

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
3 in.	f/2.8	2.25 in. x 2.25 in.	Fairchild Space & Defense Systems, El Segundo

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0		5		10		15		20		25						

FILM 4400 TARGET CONTRAST 1000:1 FILTER ____

RADIAL	90		107		111		82		95		62						
TANGENTIAL	90		95		93		100		76		45						

AWAR 88 L/mm

FILM ____ TARGET CONTRAST ____ FILTER ____

RADIAL																	
TANGENTIAL																	

AWAR ____ L/mm

FILM ____ TARGET CONTRAST ____ FILTER ____

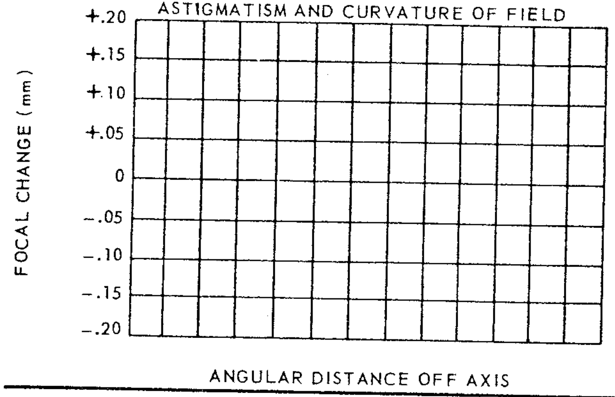
RADIAL																	
TANGENTIAL																	

AWAR ____ L/mm

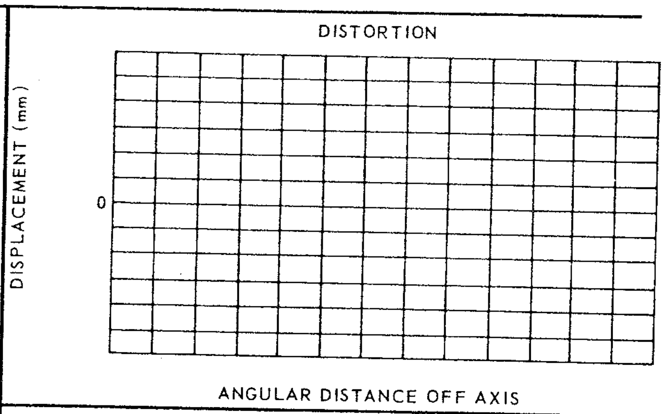
VISUAL ____ TARGET CONTRAST ____ FILTER ____

RADIAL																	
TANGENTIAL																	

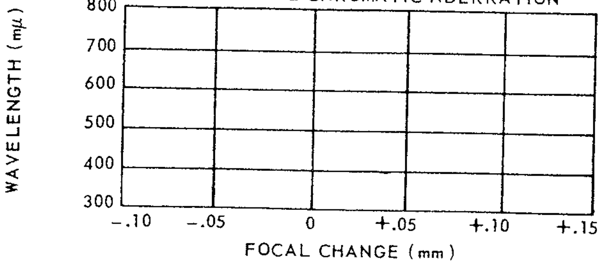
ASTIGMATISM AND CURVATURE OF FIELD



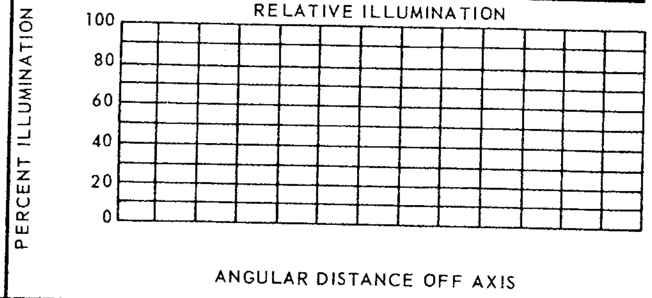
DISTORTION



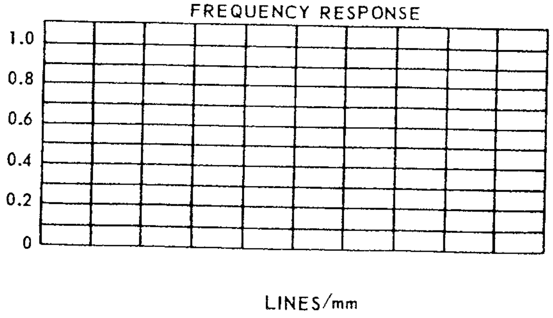
LONGITUDINAL CHROMATIC ABERRATION



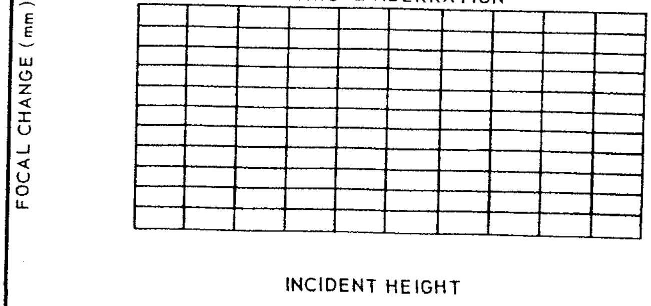
RELATIVE ILLUMINATION



FREQUENCY RESPONSE



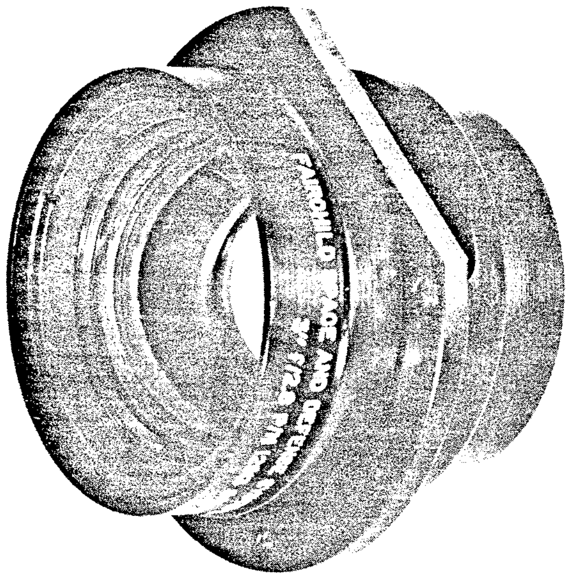
SPHERICAL ABERRATION

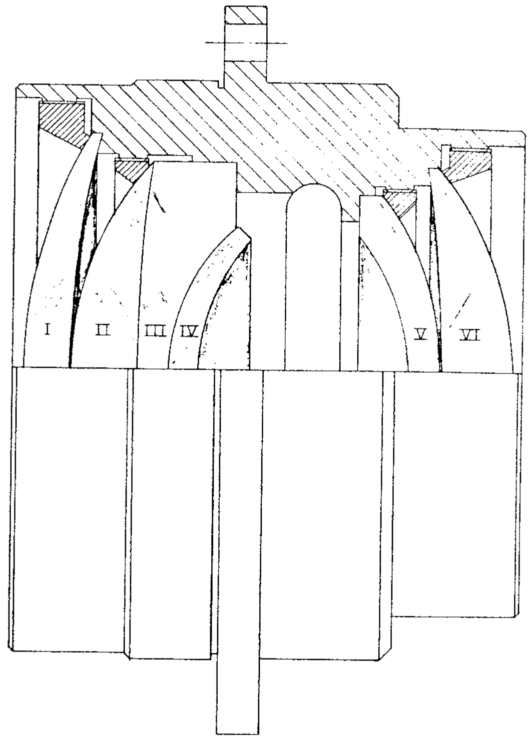


LENS DATA INFORMATION SHEET *(Reference MIL-STD-150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance		NAME	
FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x .5 in. slit	MANUFACTURER Fairchild Space & Defense Systems, El Segundo
STOCK NO. Fairchild P/N 115-100	SPECIFICATION NO.	STATUS Production	

GENERAL DESCRIPTION





CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.2 mm)	TRANSMITTANCE 64% at 0°
BACK FOCAL DISTANCE 2.15 ± .05 in.	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE 3.5869	DISTORTION *(Maximum)* .052 mm at 25°
FLANGE FOCAL DISTANCE $2.995 \begin{smallmatrix}+.015\\-.035\end{smallmatrix}$ in.	LENS CELL DIAMETER *(Maximum)* 2.156 in.
SEMI-FIELD ANGLE 25°	OVERALL LENGTH 1.500 in.
RELATIVE APERTURE f/2.8	WEIGHT 4.5 oz

REMARKS:

Used on the following aircraft cameras: KA-60, KA-54

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
3 in.	f/2.8	2.25 in. x .5 in. slit	Fairchild Space & Defense Systems, El Segundo

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0		5		10		15		20		25							

FILM 8401 TARGET CONTRAST 1000:1 FILTER

RADIAL	71		73		75		74		67		41							
TANGENTIAL	71		71		66		56		53		37							

AWAR ______ L/mm

FILM ______ TARGET CONTRAST ______ FILTER ______

RADIAL																		
TANGENTIAL																		

AWAR ______ L/mm

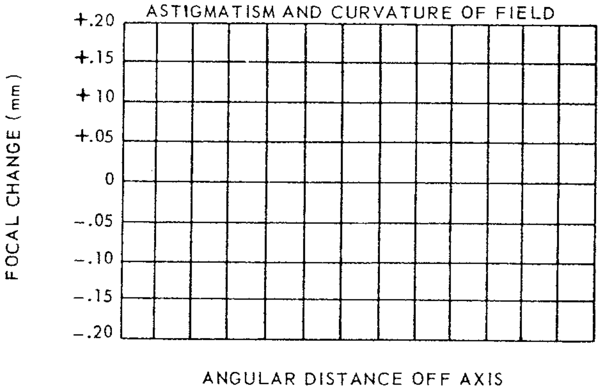
FILM ______ TARGET CONTRAST ______ FILTER ______

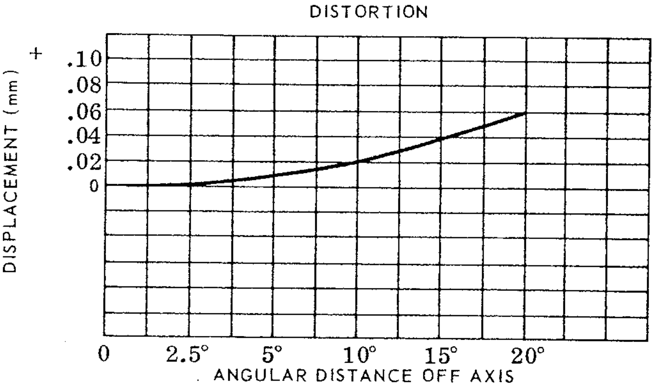
RADIAL																		
TANGENTIAL																		

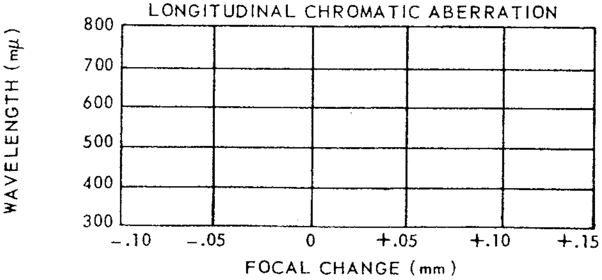
AWAR ______ L/mm

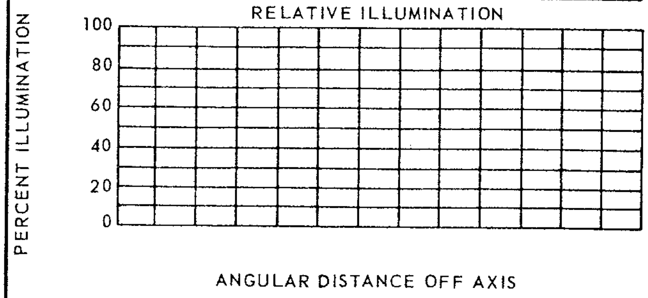
VISUAL ______ TARGET CONTRAST ______ FILTER ______

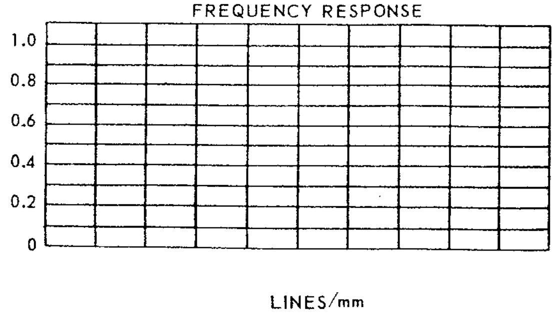
RADIAL																		
TANGENTIAL																		

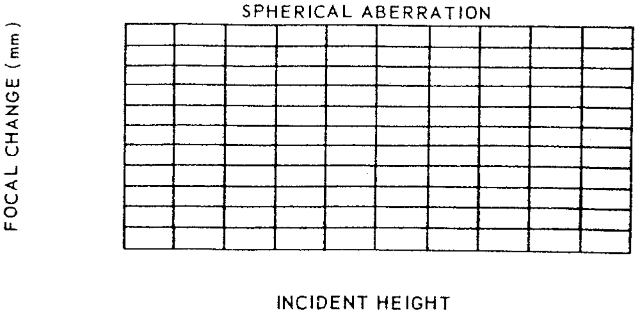

ASTIGMATISM AND CURVATURE OF FIELD


DISTORTION


LONGITUDINAL CHROMATIC ABERRATION


RELATIVE ILLUMINATION


FREQUENCY RESPONSE

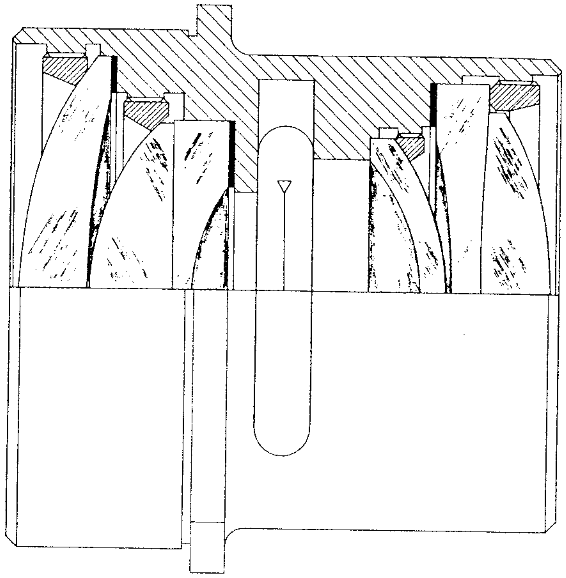

SPHERICAL ABERRATION

LENS DATA INFORMATION SHEET

(Reference MIL-STD-150A for definition of terms and methods of measurement)

DATE	15 Sept. 1967
TYPE (MIL-STD-150A)	Type I Aerial Reconnaissance
NAME	
FOCAL LENGTH	3 in.
RELATIVE APERTURE	f/2.8
FORMAT	2.25 in. Pan (0.2 in. wide 2.25 in. long)
MANUFACTURER	Fairchild Space & Defense Systems, El Segundo
STOCK NO.	Fairchild P/N 141-100
SPECIFICATION NO.	
STATUS	Production

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH	3 in. (76.2 mm)	TRANSMITTANCE	
BACK FOCAL DISTANCE	1.6823 in.	COLOR CORRECTION	
FRONT VERTEX BACK FOCAL DISTANCE	3.4655 in.	DISTORTION *(Maximum)*	
FLANGE FOCAL DISTANCE	2.8750 in.	LENS CELL DIAMETER *(Maximum)*	2 in.
SEMI-FIELD ANGLE	21.03°	OVERALL LENGTH	1.875 in.
RELATIVE APERTURE	f/2.8	WEIGHT	6.1 oz

REMARKS:

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. Pan (0.2 in. wide 2.25 in. long)	MANUFACTURER Fairchild Space & Defense Systems, El Segundo

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20													

FILM 8401 TARGET CONTRAST 1000:1 FILTER

RADIAL	71	67	79	82	67													
TANGENTIAL	71	71	78	80	63													

AWAR ________ L/mm

FILM 4400 TARGET CONTRAST 1000:1 FILTER W-12

RADIAL	101	107	95	116	90													
TANGENTIAL	90	95	104	112	75													

AWAR ________ L/mm

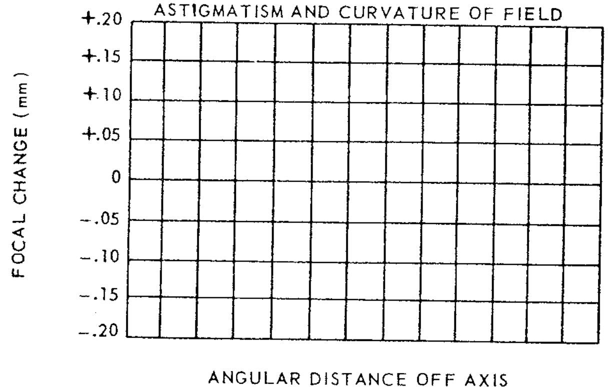
FILM 3404 TARGET CONTRAST 1000:1 FILTER W-12

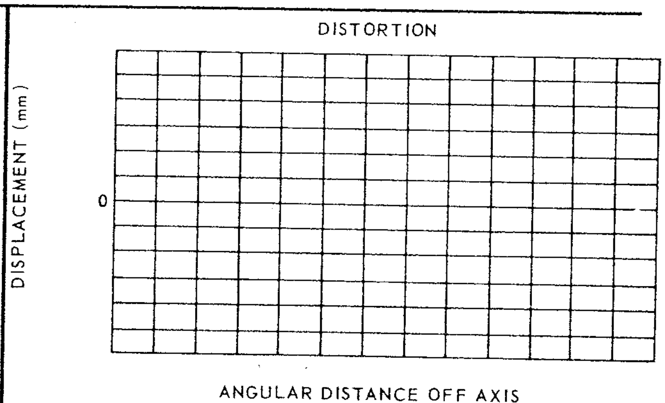
RADIAL	160	190	198	194	122													
TANGENTIAL	160	170	188	178	100													

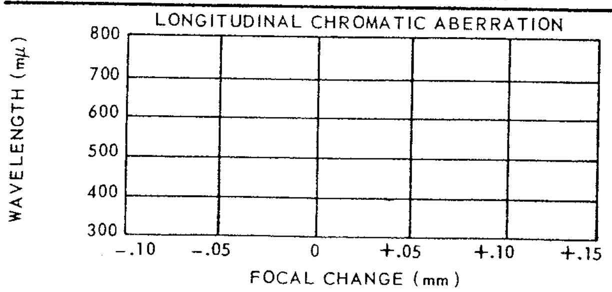
AWAR ________ L/mm

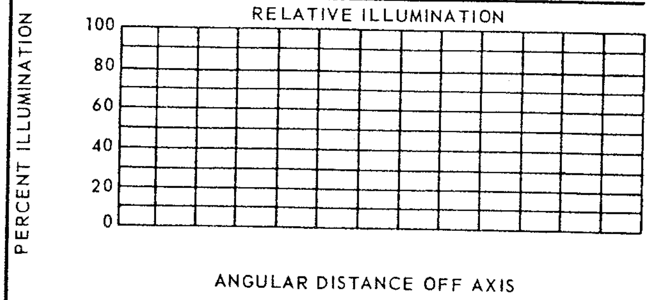
VISUAL ________ TARGET CONTRAST ________ FILTER ________

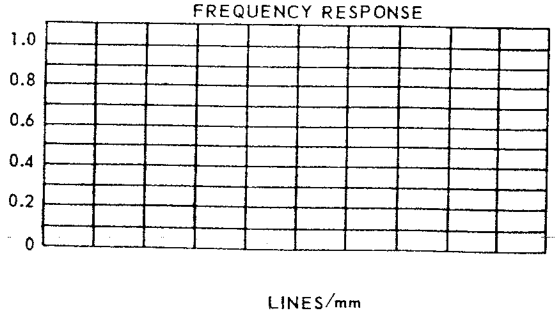
RADIAL																		
TANGENTIAL																		

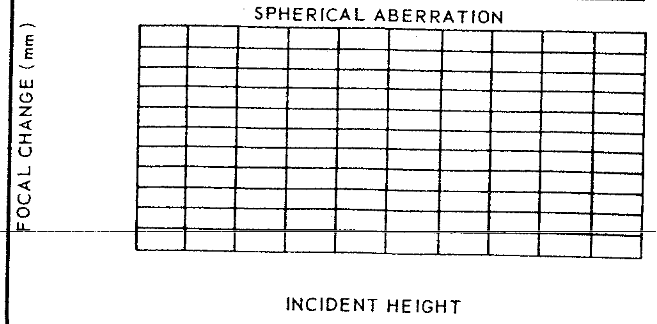

ASTIGMATISM AND CURVATURE OF FIELD


DISTORTION


LONGITUDINAL CHROMATIC ABERRATION


RELATIVE ILLUMINATION


FREQUENCY RESPONSE


SPHERICAL ABERRATION

LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL-STD-150A) Type I Aerial Reconnaissance	NAME Finitar Series 104

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER General Scientific Corp.

STOCK NO.	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION

CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.2 mm)	TRANSMITTANCE 82% (T3.1)
BACK FOCAL DISTANCE 2.15 in. (55.6 mm)	COLOR CORRECTION 4861-6563Å
FRONT VERTEX BACK FOCAL DISTANCE 3.55 in. (90.3 mm)	DISTORTION *(Maximum)* 0.17 mm
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*
SEMI-FIELD ANGLE 25°	OVERALL LENGTH
RELATIVE APERTURE f/2.8	WEIGHT

REMARKS:

Used on the following aircraft cameras: P-2, KB-10A, KB-8A, KS-92

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER General Scientific Corp.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20	25												

f/2.8 FILM Super XX TARGET CONTRAST High FILTER W-12

RADIAL	56	49	48	41	29	20												
TANGENTIAL	49	49	34	33	47	17												

AWAR 35 L/mm

f/5.6 FILM Super XX TARGET CONTRAST High FILTER W-12

RADIAL	63	71	63	45	44	43												
TANGENTIAL	63	71	54	44	42	39												

AWAR 49 L/mm

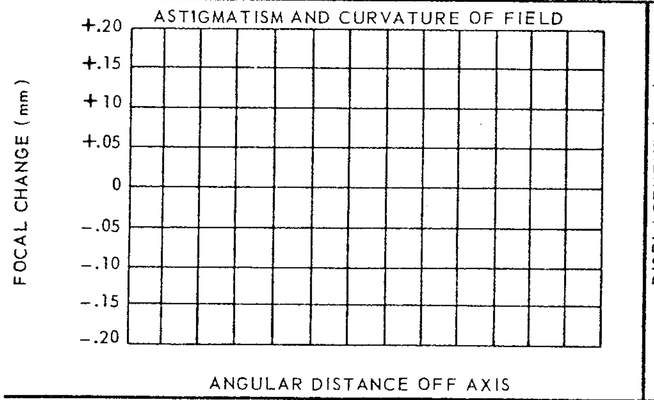
FILM ______ TARGET CONTRAST ______ FILTER ______

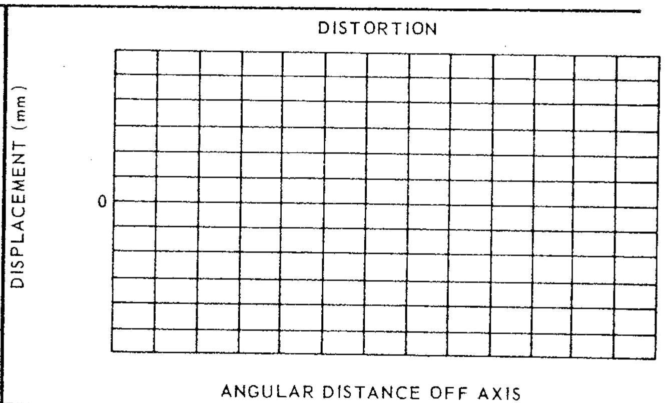
RADIAL																		
TANGENTIAL																		

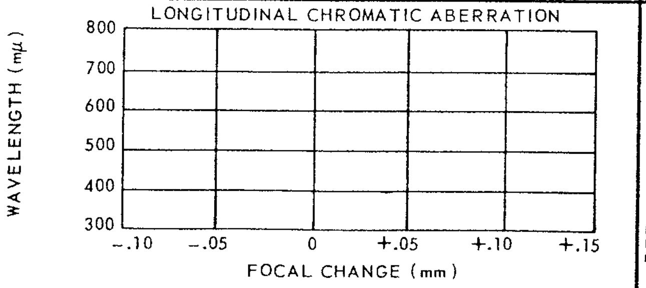
AWAR ______ L/mm

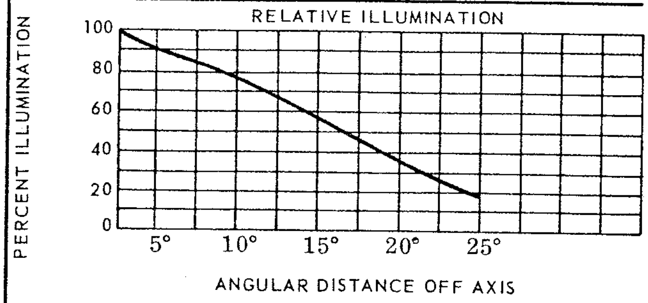
VISUAL ______ TARGET CONTRAST ______ FILTER ______

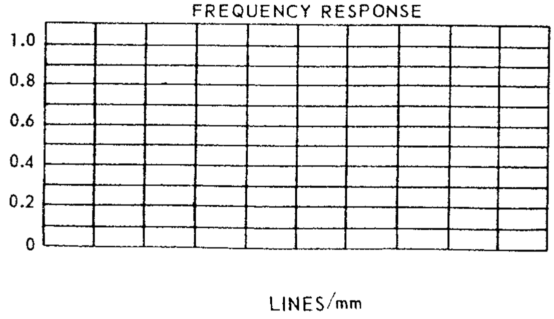
RADIAL																		
TANGENTIAL																		

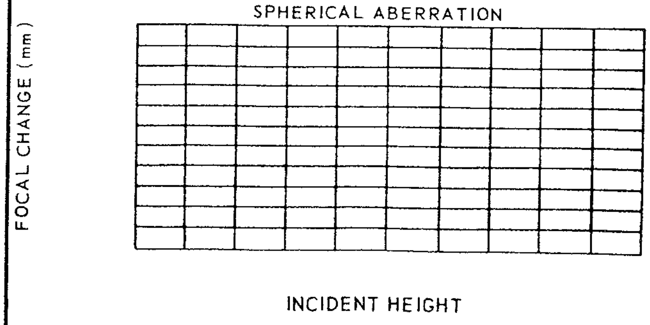

ASTIGMATISM AND CURVATURE OF FIELD


DISTORTION


LONGITUDINAL CHROMATIC ABERRATION


RELATIVE ILLUMINATION

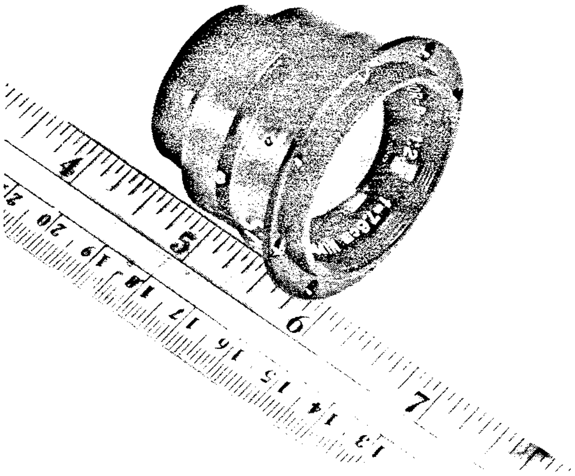

FREQUENCY RESPONSE


SPHERICAL ABERRATION

LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

TYPE (MIL–STD–150A) Type I Aerial Reconnaissance		NAME Nikkor	
FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x 2.25 in.	MANUFACTURER Nippon Kogaku Co.
STOCK NO.	SPECIFICATION NO.	STATUS	

GENERAL DESCRIPTION



CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (76.2 mm)	TRANSMITTANCE 89% (T3.0)
BACK FOCAL DISTANCE	COLOR CORRECTION
FRONT VERTEX BACK FOCAL DISTANCE	DISTORTION *(Maximum)*
FLANGE FOCAL DISTANCE	LENS CELL DIAMETER *(Maximum)*
SEMI–FIELD ANGLE 25°	OVERALL LENGTH
RELATIVE APERTURE f/2.8	WEIGHT

REMARKS:

Used on the following aircraft cameras: P-2

FOCAL LENGTH	RELATIVE APERTURE	FORMAT	MANUFACTURER
3 in.	f/2.8	2.25 in. x 2.25 in.	Nippon Kogaku Co.

Photographic Resolving Power in Lines /mm

FIELD ANGLE (°)	0	5	10	15	20	25												

f/2.8 FILM Super XX TARGET CONTRAST ____ FILTER W-12

RADIAL	31	31	31	30	33	34												
TANGENTIAL	31	26	27	35	33	29												

AWAR 32 L/mm

f/4.0 FILM Super XX TARGET CONTRAST ____ FILTER W-12

RADIAL	45	42	39	32	30	40												
TANGENTIAL	40	31	36	35	39	31												

AWAR 35 L/mm

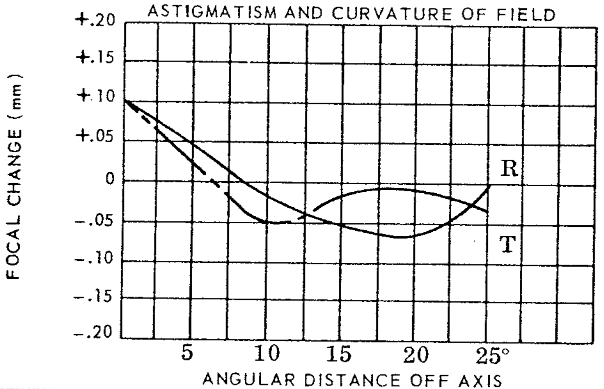
f/8.0 FILM Super XX TARGET CONTRAST ____ FILTER W-12

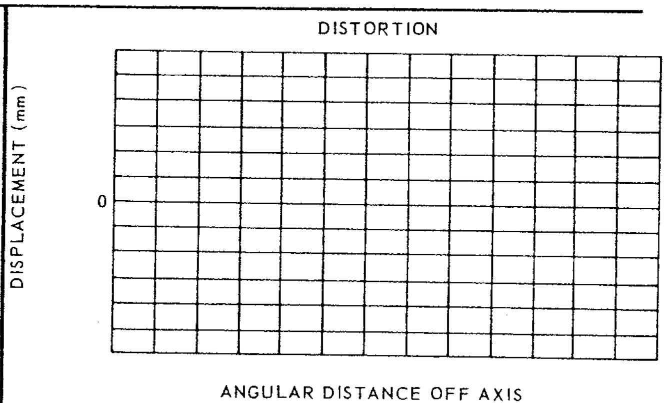
RADIAL	50	42	46	34	31	43												
TANGENTIAL	45	40	39	37	35	29												

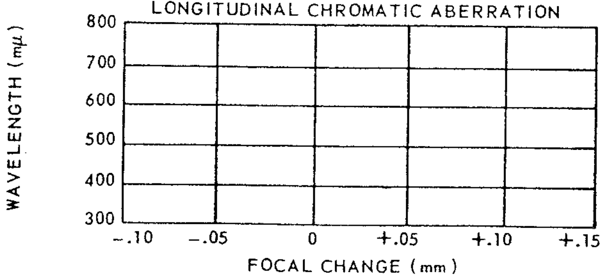
AWAR 37 L/mm

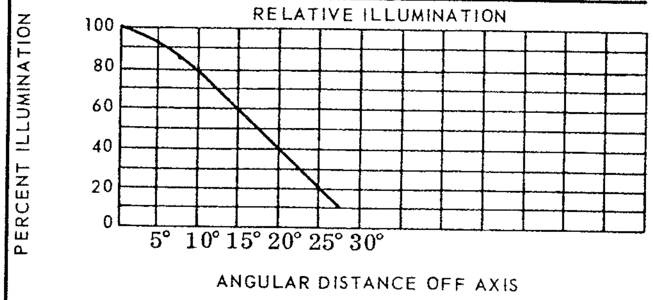
VISUAL ____ TARGET CONTRAST ____ FILTER ____

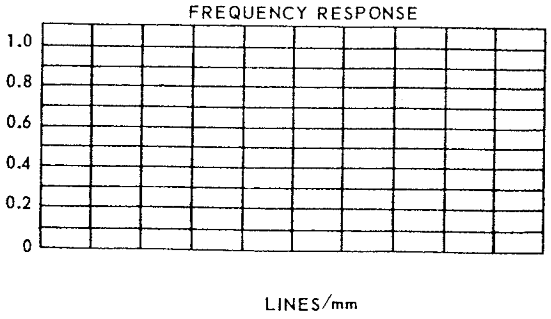
RADIAL																		
TANGENTIAL																		

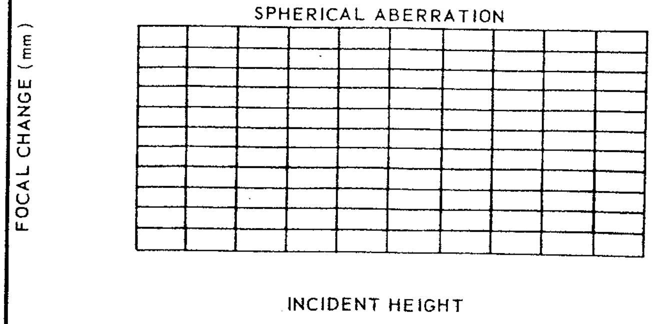

ASTIGMATISM AND CURVATURE OF FIELD


DISTORTION


LONGITUDINAL CHROMATIC ABERRATION


RELATIVE ILLUMINATION


FREQUENCY RESPONSE


SPHERICAL ABERRATION

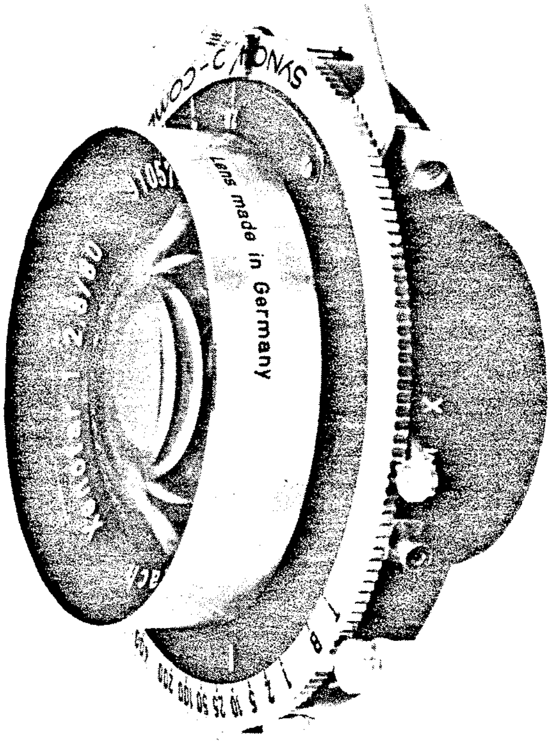
LENS DATA INFORMATION SHEET *(Reference MIL–STD–150A for definition of terms and methods of measurement)*	DATE 15 Sept. 1967

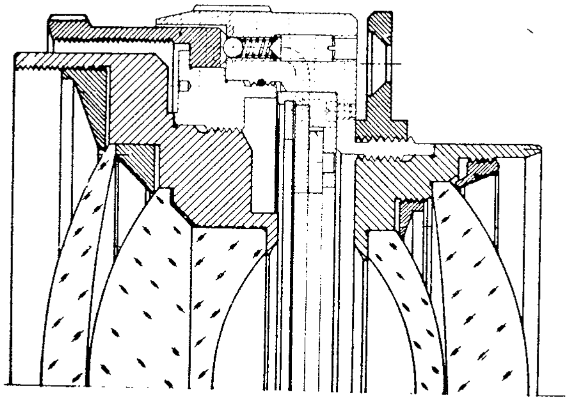
TYPE (MIL-STD-150A) Type I Aerial Reconnaissance	NAME Xenotar

FOCAL LENGTH 3 in.	RELATIVE APERTURE f/2.8	FORMAT 2.25 in. x 2.25 in. (56 mm x 72 mm)	MANUFACTURER Jos. Schneider & Co.

STOCK NO. Schneider P/N XNT 2880 - 0009a	SPECIFICATION NO.	STATUS

GENERAL DESCRIPTION





CHARACTERISTICS

EQUIVALENT FOCAL LENGTH 3 in. (80.4 mm)	TRANSMITTANCE 3660 4050 4360 5440 6730 Å 17 65 80 93 89 %
BACK FOCAL DISTANCE 2.3 in. (60.0 mm)	COLOR CORRECTION 4360-6440Å
FRONT VERTEX BACK FOCAL DISTANCE 3.8 in. (97.5 mm)	DISTORTION *(Maximum)* -0.99%
FLANGE FOCAL DISTANCE 2.9 in. (73.5 mm)	LENS CELL DIAMETER *(Maximum)* 2 in. (58 mm)
SEMI-FIELD ANGLE 29.5°	OVERALL LENGTH 1.6 in. (40.5 mm)
RELATIVE APERTURE f/2.8	WEIGHT .62 lbs (290 g)

REMARKS: